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THE BUILDER

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AT THE PORTAL.

What can we bring, who at the portal stand
Of this new century, and far behind
See the long highway of the Ages lined
With structures reared by Man's symbolic hand—
Egypt's dim Temples shadow the hot sand,
Mystic as Fate; the Greek's æsthetic mind
Expressed in clear columnar grace we find,
And Faith's tall spires point to a heavenly land:
What can we bring, who, fallen on empty days,
Unsettled aims, and hard mechanic hours,
Have chased a dying art through devious ways?
Love, Work, and Hope—these three may still be ours;
Through these the fallen fane we yet may raise,
Where the great city of the future towers.

Retrospect and Prospect.

ALTHOUGH our larger divisions of time are arbitrary, or at all events only governed by considerations of arithmetical convenience in reckoning, there must nevertheless be a feeling of a certain solemnity and importance in the entrance upon a new cycle of a hundred years. For one thing, it is, unless in some few very exceptional cases of longevity, a unique event in the life of every one. When we wish each other "a happy new year," we make a mental forecast of the whole year and its possible events. But we can wish no one, in the same sense, "a happy new century." No one old enough to read these words will ever see another dawn of a century; whatever reflections we have to make on the situation must be made once and for all.

Since the lapse of one hundred years is a time long enough for great changes to take place in the intellectual, moral, and social conditions of life—changes sufficiently important to be appreciated in our retrospective view of history, we have been accustomed, by way of grouping our historic ideas, to think of each century as having special characteristics of its own, as representing certain tendencies in thought, in art, in social polity, not exactly conterminous with the century, but so far contained within its limits as to be appropriately associated with it. Thus, when we speak of eighteenth-century literature, we mean something more than a mere date; we think of certain marked characteristics which belong to the literature of that period. And in architecture these century characteristics are perhaps even more marked. We all have a perfectly clear definition before our minds when we speak of the architecture of the thirteenth, fourteenth, or fifteenth century. But how shall we characterise the architecture of the nineteenth century? And what are we to expect will be its development in the twentieth?

The future historian of English architecture will probably, we think, characterise the nineteenth century more especially as the century of the Gothic revival. Although it has run its course some time ago, and gone the way of all revivals, no other movement in architecture, during the epoch in question, has lasted so long, has been the object of such general and widespread enthusiasm, and has left such a large visible impress on the architecture of this country. It belongs to the century, in fact, more fully than would appear from the mere dates of the earliest churches erected under its influence; for it was in the air, so to speak, before it took visible shape in any important buildings. Rickman's celebrated publication, the first methodical attempt to classify the styles of mediæval architecture, dates from 1819, and was the result of an already existing feeling that our national mediæval architecture had been unduly neglected. Nor have we cause to be ashamed of the Gothic revival as the principal development of the outgoing century. We can see now that it was a mistake—an illusion; but it was a noble error after all, the product of a genuine enthusiasm, and it had an important and lasting effect in awakening a new interest in architecture, and removing it from the category of a respectable profession to that of an art to be passionately loved and pursued for its own sake and not for mere lucre. And let it not be forgotten that it has left us as a legacy the finest, most picturesque, and most original public building of modern times.

The nineteenth century may also be remembered in a less satisfactory way, architecturally, as the century of restoration. This was a movement linked with the Gothic revival, and it must be admitted a much more questionable one. The practice of restoration has obliterated, since the beginning of the century, the genuine value, as examples of ancient architecture, of many of our churches and some of our cathedrals; and, unhappily, the mischief is absolutely irretrievable. We must not judge the architects of the last generation, however, too hardly in this matter. They did not, at all events, disfigure the ancient cathedrals, as some of their predecessors in the pre-revival generation did; they brought learning and care to their work; and in the rearranging and decorating of the often dilapidated and untidy interiors of cathedrals and churches they, and those who commissioned them, carried out a work which was really desirable and even necessary; and if some of those who now rail against every kind of restoration could be suddenly transported back into one of our cathedral interiors as it was in its unkempt and dingy condition before the restoration era, they would perhaps unexpectedly realise that there are two sides to the question, and that the buildings are now in a far more decent and seemly condition for public worship than they were at the commencement of the century. The misfortune is that, with the best intentions, the restorers, acting at the time with the approval of every one, carried out an immense amount of refacing of ancient architecture, under the idea of restoring its pristine beauty, before it was realised that this was an impossible effort, that the imitation was of no value as a substitute for the original. By the time this was realised, the mischief was done, and could not be undone; and this experience ought at all events to be a lesson as to too much meddling with old buildings in the future. It is fair to ourselves, too, to remember that the English are not the only or the worst sinners in this respect. The French have carried out restoration in a systematic and drastic manner beyond what the most enthusiastic of our restorers have ventured upon; they consider the promotion of such work part of the business of the Government, and they are still carrying it on, and still unrepentant and unconverted.

If we turn from the æsthetic to the practical side of civil architecture, there can be no doubt that in that connexion the century just closed will be remembered especially as the century of sanitation. At the commencement of the century we knew and apparently cared nothing about sanitation beyond a general notion that houses should be drained somehow or other. At the close of the century we seem to know all about it—about drainage and sanitary construction at all events; little remains except, in the words of the old hymn, to "always practise what we know." In the more vague science of ventilation, if it can as yet be called a science, we seem to be still in a partially experimental stage; though as long as mechanical power is made use of we have now the means of securing perfect ventilation of a large building; it has been done with marked success in some instances, and might be done in all cases in which there is a *dignus vindice nodus* for keeping up a mechanical driving power. The fact is there is really no science of ventilation apart from mechanical power or special application of heat; without those aids we can only provide facilities for ventilation, without ensuring certainty. The contrary idea has only been fostered by the makers and exploiters of various ventilating nostrums—"extractors" which do not extract, and which, with the new century, let us hope, will go the way of other vain inventions.

The architectural problems which are in process of consideration, and are handed over to the new century for solution, appear to be three—viz., architectural education; the combination of the decorative arts with architecture; and the housing of the working classes. The latter subject, which has been much discussed during the last few years, may be thought to be as much a social and financial as a building problem; but the question of the best planning, the best situation, and the best construction for such a class of buildings, so as to combine economy with sanitary conditions and with as much attractiveness as possible, is an important part of the problem, and one about which we are still far from any final decision, though the present tendency seems to be towards the idea of suburban dwellings and cheap communication. Probably some experiments will have to be made, even at a loss, and some experience gained, before we arrive at a final settlement of the question.

Architectural education has never been so much discussed and considered in this country as at present, though we are still in a transition stage in regard to it. What is evident, however, is that there is an increasing desire to substitute a separate and systematised education for the mere office routine which formerly constituted the mainspring of architectural training in this country. With some, the predominant idea is a training in the craftsmanship of building, leaving the element of architectural design to evolve itself from this basis. With others the ideal is an intellectual training in the art of architectural design, analogous to that given by the Ecole des Beaux-Arts in France. The latter seems likely to prove the true solution of the problem. Architecture in modern times is an intellectual conception, to which mere building craft is subordinate. It is to the development of this power of intellectual conception that the future of architectural education must tend.

The general prospect for Art in 1900 is far more promising than it was in 1800. There is enthusiasm where there was then indifference; knowledge where there was then ignorance. We have every reason to hope that the Twentieth Century may prove a greater artistic era than the Nineteenth. We have been living through what has been admittedly an epoch of architectural imitations. Let us endeavour to render the coming century an epoch of new and original creation in architecture.

SIR CHARLES BARRY, R.A.
(From a Crayon Portrait in the possession of Sir J. Wolfe Barry.)

THE ARCHITECTURAL GENIUS OF SIR CHARLES BARRY.

BY THE EDITOR.

SO much is architectural taste at present under the influence of the fashion of liking for this or that character of detail, that we seem in danger of forgetting that architectural genius is really shown not so much in the details of a building as in its general conception as a whole idea, of which the plan is the basis, and the general grouping the development and expression. Refinement in detail is an indication of culture and scholarly feeling, and there are many great productions of architecture in which the detail will bear examination as much as the total effect; but it is, after all, the general conception which stamps a man as a great or a mediocre architect. We can recognise this in regard to Wren; for while we all admit the general grandeur and beauty of St. Paul's, and the extraordinary variety of invention displayed in Wren's smaller churches—while we count Wren as unquestionably one of our greatest architects, a man with in-born genius for the art of building—few people would in the present day deny that the details of his buildings are too often poor and commonplace, as decorative work, abounding in mere repetitions of *rococo* ornament, the introduction of which can hardly come properly under the definition of design; and indeed it seems doubtful whether the detail of a great deal of Wren's work really owes anything to his hand at all, and is not merely the almost mechanical application, by artisans, of the style of carving and ornament which they were in the habit of carrying out indiscriminately on every building of the day.

Yet we recognise Wren as a great architect; his fame is established; he is taken for what he was; his works have now become ancient buildings, and are regarded without any reference to the artistic fashions of to-day. How is it that Sir Charles Barry, whose sense of refinement in detail was far superior to Wren's, and who in grasp of plan and architectural conception was at least his equal, is hardly thought or spoken of among the younger generation of architects of the present day? The reason (though a poor one) we take to be that, as an architect of the modern period, he is regarded as representing a phase of architectural taste which has been superseded. He belonged to a period before the idea of the union of the arts and crafts had come into being; he designed buildings as "a professional architect" on the old lines; he was an "eclectic" in regard to style, which is now an unpardonable sin, but was in his days regarded almost as a virtue; he had a leaning towards symmetrical effect and careful detail which appears, no doubt, formal and antiquated in the eyes of a generation who are given up to the search of the picturesque, or even the eccentric, in architectural design. But it is a very narrow school of architectural criticism which considers a building only in reference to its agreement with the special likings and fancies of our own day and our own artistic circle.

The fact is, that in all the essential qualities which go to make that very *rara avis*, the in-born architect, Inigo Jones, Wren, and Barry are the three most remarkable figures in English architecture since the Renaissance; and if Inigo Jones, in virtue of a certain fiery quality of genius, may be considered to have stood above the other two, there can be no doubt that Barry was fully the equal of Wren, and the only English architect since his day who can be classed with him, and who has exhibited

something of the same kind of innate architectural insight, as it may be called, into the problems of architectural design. For what is it that especially marks the in-born architect? Not the power of making artistic drawings, nor yet of inventing picturesque and novel detail. It is the power of grasping the whole possibilities of a site and of a plan; of seeing intuitively what can be done with a building, and of understanding how to combine practical requirements with effective architectural treatment. And in these qualities, and in their exercise on a great scale, Barry is really the only person who can be rightly regarded as being a successor to Wren. Neither of them were sentimental architects: but then architecture is not all sentiment; it is a practical art, based on practical requirements; an important truth which neither Wren nor Barry ever lost sight of for a moment.

There was this difference between the two, however, that while Wren was, fortunately for us, drawn into the practice of architecture without being originally intended for it, and brought into it almost by the force of circumstances, Barry intended his career from the first, and went into regular training for it at the early age of fifteen, though in an office where it appears probable that he saw little except of surveying work and the business side of the profession generally. This business side, however, he studied accurately and industriously; "lists of prices, calculations of dimensions; methods of measuring and valuation, crowd his notebook, side by side with studies from 'Chambers's Architecture,' and sketches of such details and ornaments as struck his own fancy."*

It was probably owing to this familiarity with the dry business side of the profession in his pupilage days, that Barry acquired the practical view of architecture which he retained all his life. He was not one of the "art architects" who think specification and measuring beneath them; on the contrary, his biographer testifies that he rather had a contempt for architects who thought themselves above those practical subjects. Perhaps it was the best thing for him that he got his training in an office of that class; for his artistic tastes were innate and needed no external stimulus, and in the office routine he acquired what he might have neglected otherwise. Unlike Wren, he was a beautiful draughtsman; and, again unlike Wren, but like many successful modern architects, he preluded his career of architectural practice by an assiduous course of sketching. He was fortunate in getting some substantial assistance, just when he needed it, in carrying out his sketching tour further than he might otherwise have been able to do; for in 1818, just as he was feeling that considerations of economy must bring his tour to a close, a wealthy gentleman, Mr. David Baillie, whom he had met at Athens, offered to pay Barry at the rate of 200*l.* a year to accompany him and sketch for him on a tour in the East, the artist to be allowed to keep copies of the sketches. This tour was the occasion of the production of a large number of beautiful sketches, several portfolios of which have been secured again by his family from the inheritors of Mr. Baillie. Among these is the admirable, and carefully executed drawing of Karnac, now in the possession of Sir J. Wolfe Barry, who has kindly lent it to us for reproduction in this issue (see lithograph). This is a masterly piece of architectural sketching, notable especially for its clearness and firmness of execution and for the care and evident truth with which the shadows are put in. Considering the number and the exceedingly careful and neat execution of the foreign sketches of this period (quite typically an *architect's* sketches), it is evident that Barry, even at this period and on this partially holiday expedition of sketching, must have been a most indefatigable worker.

Considering the class of buildings with which Barry's name is now chiefly connected—mansions, clubs, and the Houses of Parliament — it seems rather curious that his professional career commenced mainly with church-building. He gained the commission for St. Peter's, Brighton, in a competition in 1823, and regarded this as being, up to then, "the proudest day of his existence," and the entrance, as he promised his wife, "to a brilliant career." The brilliant career undoubtedly followed, but not in church-building; though this success in a competition which was rather strongly contested may, no doubt, have aided in bringing him into notice. It is not generally known, probably, that the melancholy regions of Islington and Holloway boast of three churches built from Barry's designs in 1826-7, viz., St. John's, Holloway (at the west side of Holloway-road), St. Paul's, Balls Pond (at the junction of Ball's Pond and Essex-roads), and Holy Trinity, Cloudesley - square, Islington. The first-named I have not seen; the other two are plain brick Gothic-revival churches in the rather late Gothic style then in vogue, with stone dressings and window tracery; unless one knew their authorship they would certainly not attract notice now; but there is a certain dignity and sense of proportion in the Cloudesley-square church (the larger of the two) which, when we know the work to be Barry's, we can recognise as characteristic of him. The three churches were built as a commission from the Rev. D. Wilson, then Rector of Islington, and whose name was afterwards widely known as Bishop of Calcutta.

Barry's general reputation as an architect was first attained in connexion with the Travellers' Club, his design for which was selected in 1829, in a limited competition. It is worth notice that in choosing a severe Italian style for this building, he depended for success entirely on the refined treatment of a very simple and unassuming design; and though he was conscious of the disadvantage which this simplicity of design might place him under in a competition—he himself doubted of his success because he thought the building would be considered "too plain"—yet this did not influence him in any way in departing from his architectural principles by endeavouring to produce something which might be more popularly attractive. This is typical of his whole career. Barry never for a moment allowed himself to be in any way sensational or eccentric in design; he was always for what was best, not for what might be popular; he always confined himself within the lines of dignity and simplicity in design and grouping, aided by a carefully-studied refinement in detail. We see these qualities again exemplified in the Gothic design for the Birmingham Grammar School, made in 1833. This, as a modern Gothic building, shows a great advance on the rather thin and timid treatment of the Islington churches before referred to; there is a much greater breadth and massiveness about it; and though it shows an exceedingly simple adaptation of the elements of late Gothic architecture, it is still, in spite of the changes of taste in regard to revived Gothic, a building which will always give pleasure and satisfaction from its quality of dignity, repose, and harmonious proportions. The Travellers' Club shows just the same qualities in a totally different style of architecture. Compared with the more showy and restless character of much recent architecture, it is a building that might be passed over with little remark by many an observer who did not know its history; but it is one of which every detail will bear examination, and which fulfils the true ideal of an English gentleman's club, totally free from anything approaching to showiness or vulgarity. This quality is apparent again in the interior, in the unostentatious treatment of the main staircase, with its simple wooden balustrade; a marked contrast to some of the sumptuous staircases of more recent clubs, where the lavish use of costly marbles and gilding displays rather the taste of the *nouveaux riches*. In the Pall Mall front of the club Barry regretted the necessity, owing to limitations of space, of planning the building so as to have the entrance at the end instead of in the centre of the façade; his desire for symmetry and dignity would have led him to prefer a central entrance, but it would have divided up the plan too much. The garden façade to the south, which is less obvious and less noticed, is the more effective of the two; and it is noticeable how suitably a rather more playful treatment is given to this façade, by the grouping of the windows, while the street façade preserves the true Italian severity of equally spaced windows. In the interior of the house, which gives a much greater idea of spaciousness than the modest exterior would lead one to expect, there are various fine points in the treatment of the principal rooms; the dining-room, for instance, has the strongly marked cornice returned across the room at about ten feet from the fireplace end, while the latter portion is slightly separated from the rest of the room by a rather lower ceiling and this stoppage of the cornice, so as to give the impression of a separate alcove or ingle-nook without limiting the floor-space. In the library a charming effect is produced by the architectural pedestals and columns projected into the room near each end, leaving it as a large centre room with smaller ante-rooms at each end, which, besides adding to the architectural effect of the room, give the sense of seclusion suitable for quiet reading. We have to thank the committee of the club for their courtesy in allowing us to have a photograph taken of the interior of the library. The view does not show the full effect of the room as seen from one end, with the two sets of columns; but it was impossible to include the nearer ones in the foreground without too much distortion of the perspective.

Barry seems to have settled in his mind that this severe Italian style, with its large

* "Life and Works of Sir Charles Barry"; by the Rev. Canon Barry (now Bishop Barry).

The Library of the Travellers' Club.

cornice and symmetrically spaced windows, was the ideal style for a club-house, since he again adopted it for the Reform Club, built eight years later. Here again we notice that he totally discarded the assistance of engaged columns or pilasters in making out a design; he regarded these as falsities in design, constructional features improperly introduced, to produce an effect to the eye, in a situation where they had no architectural meaning. The façade of the Reform Club may be regarded by some as rather flat and tame, and it is said that the architect himself wished afterwards that he had treated the windows with rather bolder details. But it is a thoroughly satisfactory and refined building; every detail has been carefully designed; and, like the Travellers, it exactly expresses the ideal of a club-house for a select society. This corner of London was especially the arena of Barry's purely Italian work, since it was but a little way from these two clubs that he erected, thirteeen years later, the much larger mass of Bridgewater House, in an equally severe and symmetrical Italian style. The treatment of the upper story of Bridgewater House, with its square windows and panels between them, is, it must be confessed, rather uninteresting; but the building is an imposing whole; the great cornice and the broad and bold treatment of the rustication have a most powerful effect, especially on a near view, which few people see, for the house is so completely cornered, opening on a small square which forms a *cul-de-sac*, that it is only seen by those who go out of the way to look for it. In this case Barry had at first made a design with an order, probably from a fear that he would

otherwise appear to be too much repeating the architectural scheme of his adjoining Pall Mall clubs; but this design was judged to be too costly, and it is probable that Barry was not sorry that circumstances compelled him to dispense with the order. Internally it is a superb house, answering fully to the ideal suggested by the term "mansion." Like the two clubs, it is planned on the Italian *cortile* system, with a great central hall lighted from the roof and surrounded by open galleries on both ground and first floor levels. The decorative treatment of the hall, however, as at present seen, is not Barry's, and is more "rich," as people say, than he would probably have approved. In the picture gallery, which occupies most of the north side on the first floor, the device of the colonnaded partitions of the Library of the Travellers' Club is repeated on a larger scale—here also with a distinct motive, the space at one end forming the ante-room from the public stair to the picture-gallery, that at the other end forming the ante-room from the gallery of the centre court. In regard to the central hall, the original intention was that it should have contained a grand staircase, but this was relinquished from the architect's desire to keep the hall unbroken, and the staircase is (architecturally) shut off from the hall and entered from the back of its surrounding corridor; thus, though a spacious staircase, it has no stately effect. It may be questioned whether a staircase on a grand scale in the central space would not have been a finer and more impressive treatment, though no doubt the use of the hall as a sculpture gallery would have been curtailed.

Along with these examples of Barry's symmetrical Italian buildings may be mentioned the one which is catalogued in Bishop Barry's "Life" as the Manchester Athenæum, but which we take to be the same building subsequently known as the Royal Institution. This is one of Barry's square-lined classic structures, which originally contained a most charming and unusual bit of interior effect, in the shape of a little colonnaded gallery opening at each side from the staircase hall on the upper level, so that you had a vista through from the large room on one side, through these two colonnaded galleries with the staircase hall intervening, into the corresponding room on the other side of the building. The effect was so picturesque that when passing through Manchester I always used to make time to go in and look at it again. This delightful bit of interior architecture the official vandals of Manchester have now destroyed, under the pretext of getting two more small rooms in the building.

Considering that the design for the Houses of Parliament was made in 1835, it is remarkable that Barry, after his great Gothic building was completed, should in 1850 have returned again to his taste for severe Italian architecture in Bridgewater House; and one is led to speculate as to what would have been the style and appearance of the Houses of Parliament had the architect been left unrestricted in regard to style. As our readers will probably remember, the alternative of Tudor or Elizabethan style was imposed upon the competitors, no doubt from historical rather than architectural motives; these two styles, and the latter especially, being regarded as connected with a peculiarly interesting and glorious period in English history, and perhaps also because they represented styles of architecture which were essentially English and not to be found in any other country. It is well for us that for the design ultimately selected the Tudor style had been chosen, as it is a complete and homogeneous style, while Elizabethan, however gratifying for a picturesque mansion or school building, is really a medley and not a style. Had Barry been left unfettered as to style, we should probably have seen a great Italian palace with a campanile in stories, and possibly a dome as the leading feature. On the whole, however, it is rather doubtful whether we should have had as fine and as interesting a building as the existing one. The Gothic detail suits better with the atmosphere of London, and perhaps with the *genius loci* in a more general sense, than Classic would have done; and the mere fact that this detail was applied to a scheme which in the main is nearly Classic in its symmetry of disposition, in itself gives a novel and original physiognomy to the building.

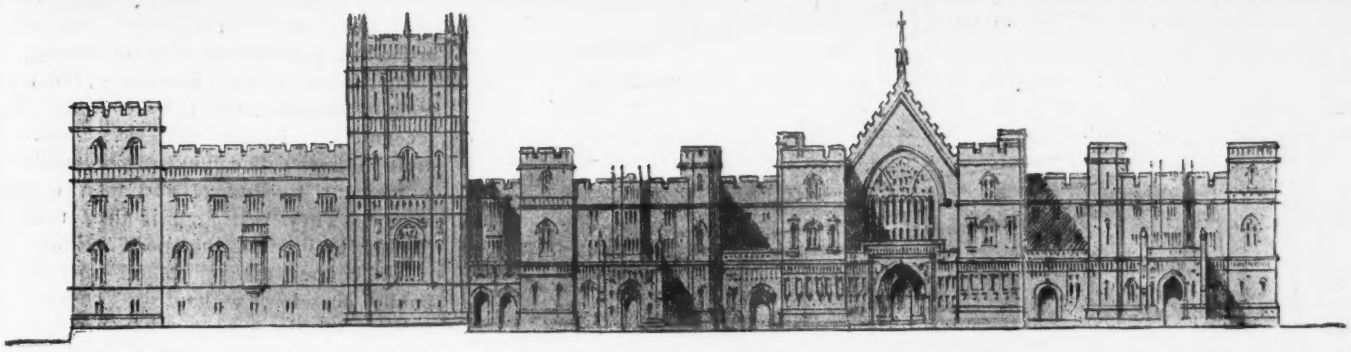
It is hardly necessary to comment at length on a building which is so familiar to every one as the Houses of Parliament. But a word or two as to its genesis may be of interest. The first conception was very different from, and much less striking than, the ultimate form of the building. Mr. C. A. Barry, the architect's grandson, to whom we are indebted for the loan of various drawings connected with the subject, possesses a small and very delicately executed pencil elevation which is believed to be Barry's first sketch for the exterior, and of which we give a copy, the same size as the original, on page 7. It was unfortunately impossible to reproduce it in facsimile, as the original is too delicate and has become too faint from age to photograph from. We give however, below this, a facsimile of a perspective sketch of Barry's, which may have been another study for the same building—it was with the Houses of Parliament drawings; it is not certain however what it was for, but it is of interest as an original study by Barry. The more elaborate elevation studies are unfortunately too delicate, and too much obliterated by the effect of time, to offer any chance of reproducing them with success. It will be seen from the small elevation sketch that the original conception of what afterwards became the Victoria tower showed a feature on a much smaller scale and much lower in proportion. Some larger elevations, when the design was in a more advanced stage, show the tower of the same bulk as at present, but much lower in proportion, the idea being at that time to give it somewhat the appearance of a castle keep. In one of these designs the curtain wall between the turrets shows six stories of small windows exactly alike, divided laterally into four groups of two each; the effect, though simple, is very broad and fine. Another design, of the same general outline, shows the small windows grouped under two tall arched recesses; the germ of the treatment of the present tower. The clock tower was the subject of repeated studies; I have before me a sheet of seven elaborate pencil drawings for it, four showing it in front elevation, two in elevation as seen from the angle, and a section of one of them. These are all obviously drawn by Barry himself, in beautiful and delicate execution with a hard pencil. The special *crux* was evidently the finish of the tower; one drawing shows a kind of bulbous form of cupola thrice repeated in diminishing size; another a more lofty and spire-like termination than the present one, but without the over-sailing clock-face story. As far as the spire termination is concerned, it is perhaps more graceful than the present one, but it would not have assimilated so well with the over-sailing clock-stage, which is what really gives the character to the erection as a clock tower, and differentiates it in feeling and purpose from the Victoria tower; and on the whole Barry's repeated studies may be said to have led him to the best result.

I have always regarded the Houses of Parliament as being the finest and most original great building of modern times; and I have found one or two eminent foreign critics entirely of the same mind; though it is not uncommon to meet with Englishmen, and men of general culture too, who do not even know or care who was the architect of the Houses of Parliament. The splendid though simple conception of the plan, with its central octagon and corridors leading right and left to the two Chambers, has been copied in buildings of a similar class in various parts of the world. This is the great feature of the building—the great idea which is the basis of it. But the exterior treatment, with the contrast of character in the two towers, placed at opposite ends of the building so as to emphasise its extent; the magnificent look of massiveness combined with richness in the Victoria tower; and the effective contrast of the graceful spire in the centre marking the octagon hall,* go to make a whole which is entirely original, unlike any other building in the world, and almost without a rival for combined dignity and picturesqueness. For a good many years I lived close to it, and saw the Victoria tower whenever I stirred out of doors—sometimes dark and lowering in effect, sometimes bright and festal, as the storm or the sunlight played upon it; but always a magnificent spectacle, and one to be grateful to its architect for.

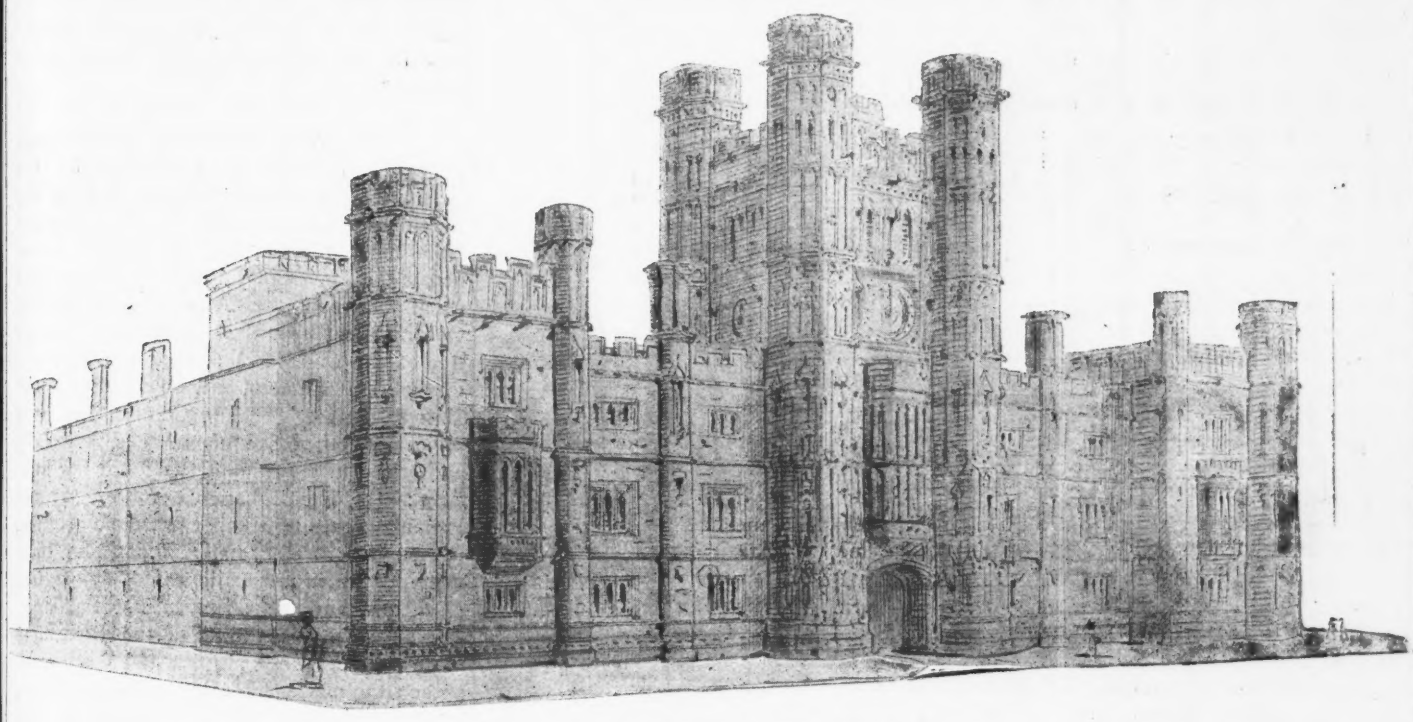
Of a building so familiar it would have seemed superfluous to give any illustration from one of the many points of view from which it is seen every day; but it seemed worth while to show the Victoria tower from a new point of view, and Mr. W. Monk has made an admirable drawing of it as seen from a point on the roof of the main building, nearly over the end of Westminster Hall, a position from which it has a new and exceedingly striking effect.

If, however, the Houses of Parliament is familiar to every one, the same cannot be said of Barry's great scheme for concentrating the Government Offices in one great block with internal courtyards, and for laying out the whole adjoining district of London. This grand scheme, drawn up in 1853, is illustrated in two very large drawings in the possession of Mr. C. A. Barry, and from which he has kindly allowed us to make the lithograph reproductions, on a reduced but still sufficiently large scale, which accompany this issue of the *Builder*. These drawings, we believe, have never been before published. They perhaps afford the highest testimony

* This centre spire was a happy afterthought. There is an engraving of the building without it, lent to me by Mr. C. A. Barry, and with Barry's sketch of the spire added in pencil.



Copy of Sir C. Barry's First Elevation Study for the Houses of Parliament Competition. (The same size as the original.)



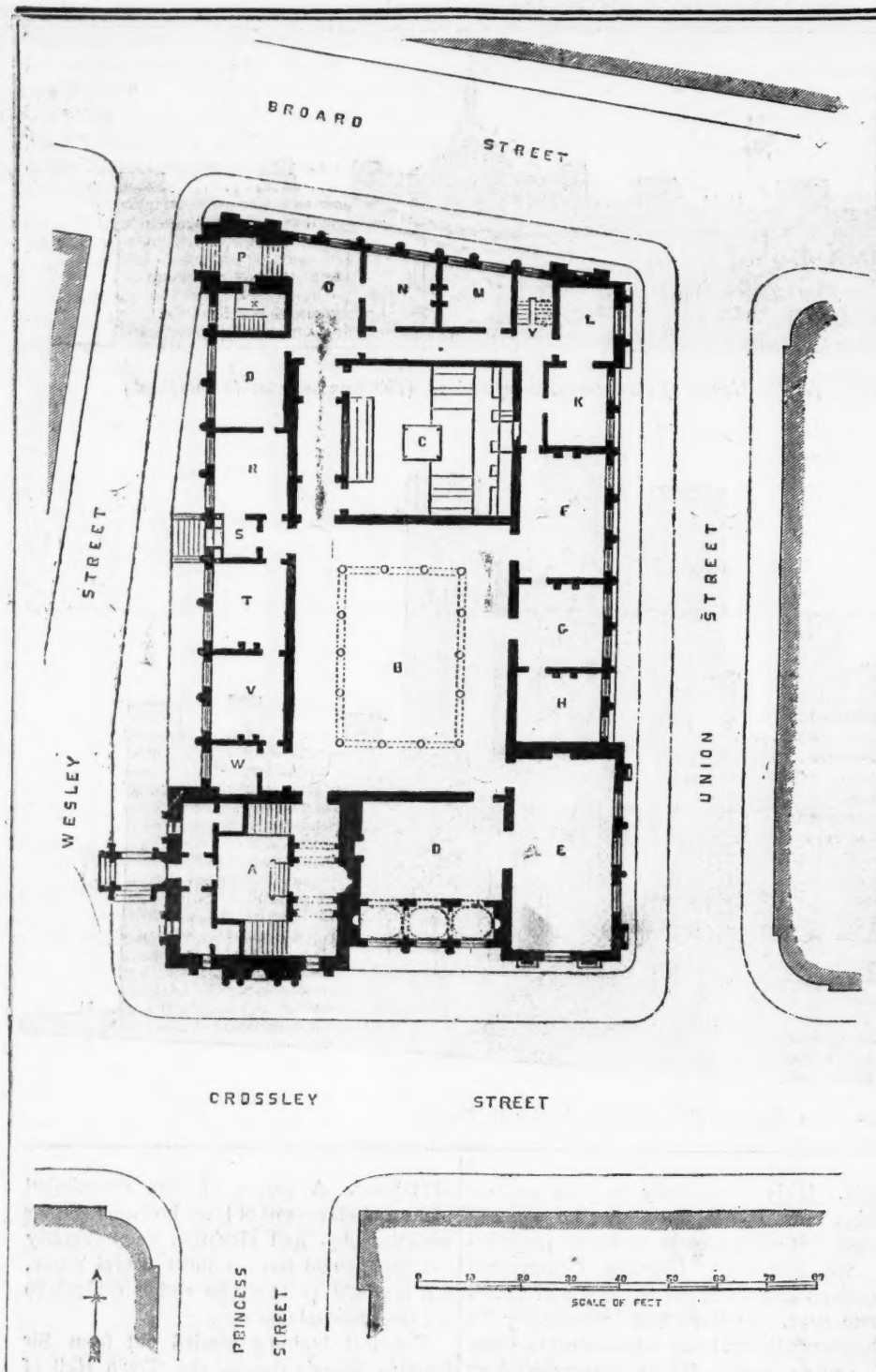
Facsimile of an Original Pencil Sketch by Sir C. Barry.

of all to the grasp of Barry's architectural genius, and it was of them that I was mainly thinking in the opening remarks in this paper in regard to the superior importance of conception over mere detail in our estimate of an architect. People may say they do not like Barry's style of detail, or think his taste in this respect *passé*; but can any one question the architectural genius of a man who could conceive, and illustrate so thoroughly, such a grand scheme as this? That is where the hand of a great architect comes in; in the power to grasp a great idea for the architectural treatment of a whole group of buildings. The drawings explain themselves sufficiently; we may point out that the idea for the Government offices was to combine them all in one great building, with its south front facing the whole length of Great George-street, and the east front occupying the whole of Parliament-street and Whitehall up to the Horse Guards (the present Treasury buildings' front being incorporated in the new building); the building being divided up into court-yards each of which, with its surrounding buildings, was to be devoted to one of the Government departments, all of which would thus be in connexion with each other, and in contiguity to the Houses of Parliament. In looking at the sheet of sections and elevations showing the whole intended disposition of the buildings one is irresistibly reminded of Wren; it is such a scheme as one could imagine him laying out, though he would never have illustrated it so finely. It is melancholy to look at this design now, and to think that for want of adopting it when a great architect proposed it, we are now building Government buildings piecemeal on isolated and inadequate sites, and have lost irretrievably the whole architectural and administrative value of concentration. It may be mentioned, as characteristic of the man, that in the large elevation Barry, besides making the drawing, wrote out the whole of the long description in printed characters, between the two plans, with his own hand*; a kind of thing that most men leave to a clerk to do from their rough draft. But Barry's enthusiasm for work, in the interests of his beloved architecture, was untiring.

To Sir Charles Barry's country mansion-houses a separate article might well be devoted, and I have left myself no space here for more than a general reference to his masterly hand in remodelling an old house and adding to its dignity by new approaches, glorious flights of steps, fountain courts, and so on. It does not appear that Barry had any opportunity of carrying out a country mansion of the largest class as an entirely new work; but his alterations and remodelling of some great mansions, Trentham Hall especially, were so important as practically to make new buildings of them. And that typical faculty of a true architect, an eye for seeing how to take advantage of circumstances, was never better shown than in these extensions and alterations. A series of his remodelled plans and elevations of large houses, together with the plan and elevation as previously existing, would form a most useful study, but it would probably be rather difficult to get the materials for it.

The last building carried out from Sir Charles Barry's design, the Town Hall of Halifax, I had long admired on paper, but only rather recently found opportunity, when in the neighbourhood of Halifax, to see the building itself. The effect of tower and spire, so Gothic in feeling though Classic in actual detail, was far more impressive than I had even expected. The plan (given on page 8) shows how characteristically careful Barry was, in placing the building on the site, to arrange that the centre line of the tower should be axial with the centre line of the street leading up to it. It is the aspect of this tower seen by itself as you come up Princess-street to it, which makes the real effect of the building; it is not, however, a very easy position to make a drawing from. Mr. Monk's view, taken from an angle position, gives the design accurately, but its finest effect is as seen from the centre of the street leading up to it. The building was actually carried out by Mr. E. M. Barry, after his father's death, and he altered it in one respect by raising the roof of the main building, so as to render it a portion of the design, Barry himself having intended to conceal the roof. But in other respects the exterior conforms mainly to Barry's original sketches, which are preserved in the Sur-

* I had this from the late Mr. Charles Barry.



Plan of Halifax Town Hall.

veyor's department of the Halifax Corporation. As usual, Barry kept his main staircase in a separate position, so as to leave the centre court complete and unbroken; the staircase occupies the ground stage of the tower, and though on a small scale, is treated in a very dignified manner. A view of it is given, as this building has not been much illustrated.

The life of Sir Charles Barry is a highly instructive one in the example it affords of untiring pains in studying and perfecting his designs in every detail. Any reader can see, from the illustration given above, how inferior was the first conception of the Houses of Parliament compared with what it ultimately became when completed; and, as we have seen, this fine development of the original idea was not attained without persevering labour and the rejection of a number of successive designs as unsatisfactory. It was the same with the detail, the mouldings especially. It was told me many years ago, by one who remembered him, that it was Barry's habit, after profiling the mouldings for a building full size, to make very careful reductions of their lines to scale, on an inch or half-inch scale elevation, to judge how they assorted with the general proportions of the elevation. In fact no labour was too much for him in perfecting his ideal of a building; and, as has been indicated, he did with his own hands what many would leave to an assistant draughtsman. In this as in his more important qualities—in his grasp of an architectural problem as a whole, and his intuitive perception of the relation between plan and design, he was a true and as one may say a born architect, of whom England may well be proud.

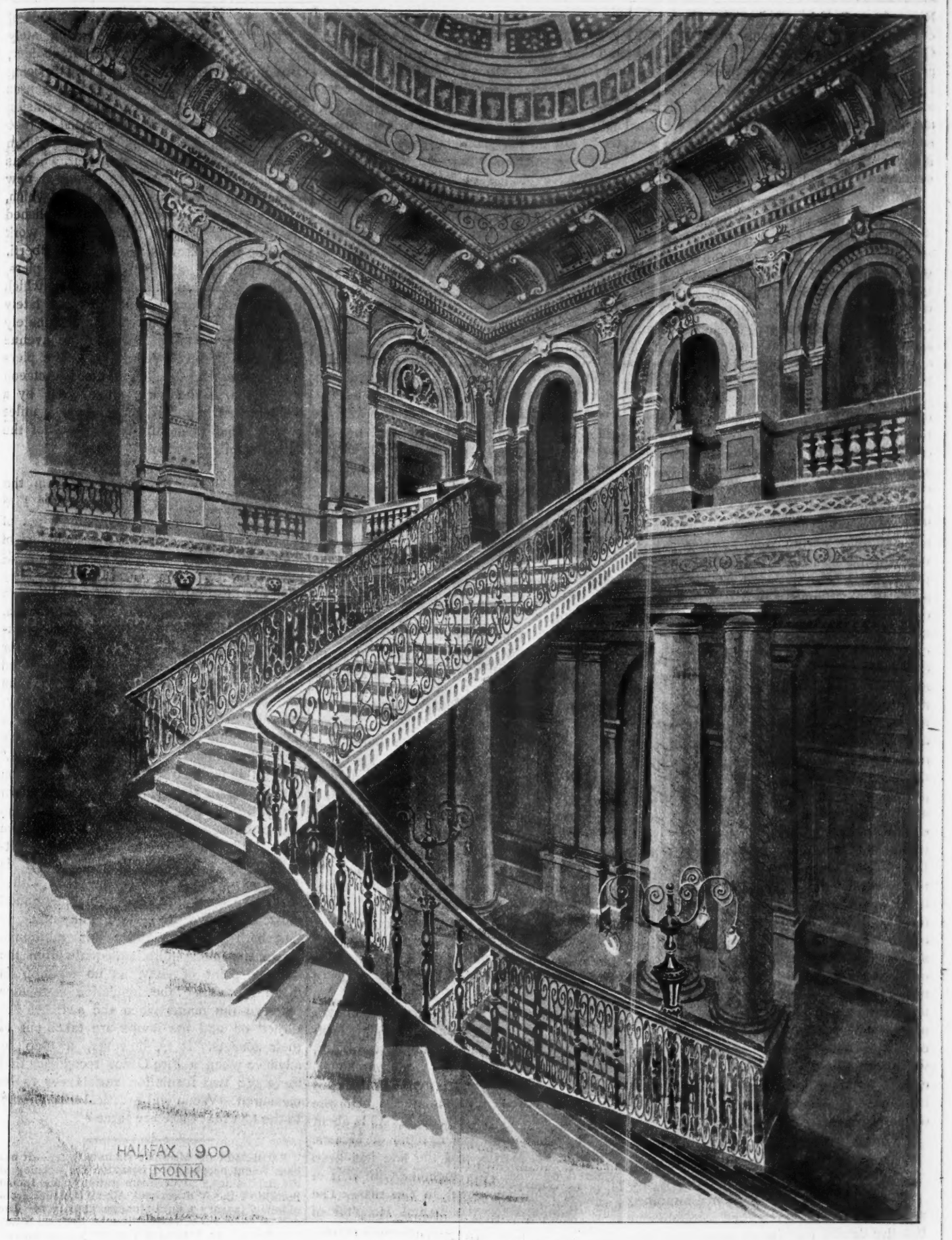
H. HEATHCOTE STATHAM.

NOTES.

The Official Neglect of Art. As usual, we look in vain in the New Year's list of official honours for any recognition of architecture or any other art, unless we are to regard the conferring of a "C.B." on Colonel Plunkett, the Director of the Science and Art Department at Dublin, as an honour conferred on art. It appears that an administrating official can be recognised in connexion with an Art Department, but not an artist. A well-known large contractor, Mr. John Aird, receives a baronetcy; but architects, apparently, are not worth any such recognition. It is a pity that those who arrange these lists cannot turn their eyes for a moment to France, and take example thence. They will find, if they take the trouble to inquire, that no distribution of official honours takes place in France, on any public occasion, without a considerable portion of these titular honours going to artists, and to architects, on the whole, more than to any other group of artists. But to the mind of the English Court official an architect is, as a "paramour" was to Bottom's colleagues, "a thing of nought."

The Isthmian Canal. A PRELIMINARY Report was issued in November by the Commission appointed by the President of the United States to determine "the most feasible and practicable route across the American Isthmus for a maritime canal between the Atlantic and Pacific Oceans, together with the cost of construction of the same and placing it under the control, management, and ownership of the United States." The Commission was divided amongst five committees, severally authorised to investigate the following subjects:—(1) The Nicaragua route, (2) the Panama route, (3) other possible routes, (4) the industrial, commercial, and military value of an interoceanic canal, (5) rights, privileges, and franchises. That the decision should be in favour of the Nicaragua route will probably perplex those who approach the matter from a purely engineering standpoint. The technical press of the United States has always recognised the undesirable character of the Nicaragua scheme, and early last year an influential engineering journal described it as "egregious folly." Even the report of the Commission does not anywhere recommend the Nicaragua route as superior to the Panama line. On the contrary, it makes clear the following disadvantages:—(1) That the Nicaragua scheme will cost 9,000,000*l.* more than the rival undertaking. (2) That the length of the Nicaragua Canal will be 186 miles, as compared with 43 miles in the case of the Panama Canal. (3) That the time occupied in traversing the former route will be thirty-three hours, as against twelve hours for the latter. As a sort of set-off, it is suggested that the cost of acquiring the rights of the Panama Canal might bring the total expenditure up to the amount involved in the Nicaragua scheme, but as no indication as to the purchase-money has been given by the French Company, it appears that this assumption of the Commission is purely theoretical. Until the full text of the final report is available, it would be premature to discuss the accuracy of the conclusions which have been formed, but it seems certain at the present stage that they have been influenced by political rather than by commercial and engineering considerations.

From the Lakes to New York. Two schemes have lately been discussed by the American Society of Civil Engineers—the first relating to a barge canal, and the second to a ship canal, from Buffalo to New York. It is not likely that a barge canal



The Staircase: Halifax Town Hall.

would provide the facilities now required. Since 1880 traffic on the Erie Canal has fallen 50 per cent., whilst railroad traffic has risen nearly 150 per cent., and the Canadian canals have entirely failed to divert commerce from the lake and railway lines. The only possible way in which a barge canal could successfully compete with other means of transport would be by the organisation of companies for working fleets of lake steamers and canal barges in conjunction, so that through bills of lading might be issued from lake ports to the seaboard. Even then, the railway and shipping companies would not improbably combine to deprive the general public of any advantage in the way of reduced rates. On the other hand, a ship canal would form an unobstructed waterway connecting harbours serving the most productive parts of the United States; the development of shipbuilding would be encouraged at lake ports; and individual shipowners would be able to compete on equal terms with large combinations. As recommended by the United States Commission, the ship canal would be 21 ft. deep by 215 to 250 ft. wide at the bottom, passing through the Niagara

River from Buffalo to Lasalle, thence by eight locks to Lewiston, through Lake Ontario to Oswego, thence to Lake Oneida and through the Mohawk Valley to the Hudson. The time [now occupied by lake steamers between Chicago and Buffalo averages seventy-two hours, and for the same class of vessel between Buffalo and New York, by the proposed waterway, it is estimated at sixty-four hours.

The Ventilation of Sewers.

To prepare a report on this important and difficult subject was one of the first duties which the new Borough Surveyor of Grimsby, Mr. H. Gilbert Whyatt, was called upon to undertake. Certainly some of the Grimsby sewers appear to be far from satisfactory, the pressure of sewer-air being at times so great as to lift the closed manhole covers from their frames; in one instance, the cover and frame were blown a distance of 10 ft., the paving itself being torn up. Mr. Whyatt falls foul of the intercepting trap between the house-drain and sewer, and calls it a "fad," but, somewhat curiously, he does not recommend that it should be abandoned. He also says:—"In my opinion, the ventilation of sewers is not desirable, except on those occasions where workmen have to descend for certain purposes. . . . . A current of air along a sewer is not a necessity." What he advocates is "a free vent for sewer-air," and this he proposes to obtain by means of shafts carried up the walls of buildings, and discharging at the highest possible levels. He also proposes to compel the owner of every new building to construct a vent-shaft from the sewer side of the drain-intercepting trap, and to carry it up the wall of the building, nominally for the purpose of ventilating the dead end of the drain, but really for the purpose of ventilating the sewer. In other words, he recommends the Corporation to compel private individuals to do the work, which, by law, the Corporation itself is bound to perform. We do not mean to say that a vent-shaft from such a point in the drain would not sometimes be useful, but we do say that the necessity for it would as a rule be of the slightest if the sewers themselves were properly constructed and adequately ventilated, as they ought to be, by the Sanitary Authority. Mr. Whyatt's report is an interesting contribution to the literature of the subject, but the wholesale multiplication of sewer-ventilating shafts on the walls of buildings, as recommended by him, cannot be regarded, either by architects or householders, as a really satisfactory solution of the problem.

Large Trusses.

COMPLICATED constructional problems are frequently met with in steel-framed buildings, and their solution is rendered more difficult because details have to be considered with reference to the positions of internal walls and doorways, as well as to the purpose for which a building may be intended. A particularly marked illustration of this point is to be found in the arrangement of the trusses over the great ballroom of the Waldorf-Astoria Hotel, New York, as described in the "Proceedings of the American Society of Civil Engineers." The ballroom is 100 ft. long, 85 ft. wide, and three stories—probably 38 ft.—high. As there are no columns in this apartment, two great trusses are concealed in the walls of the four stories immediately above, and their construction is so worked out that no indication whatever of their presence can be detected in the adjoining rooms. These trusses are each 85 ft. long by 56 ft. high, and stretching from side to side above the width of the ballroom they are practically equivalent to braced girders, carrying twelve stories of bedrooms weighing, with a reasonable addition for live load, about 20,000,000 lbs., nearly 8,930 tons. Some members of these trusses are of exceptional weight. The lower chords, for instance, are made of several 12-inch I-joists, carried on pins 12 in. in diameter. Although the form of support to which we refer may be regarded as a very simple affair by the bridge builder, or by any other structural engineer, it might not be attempted, and possibly would never be thought of on so extensive a scale by the average British architect. Yet it affords a perfectly safe alternative to the use of columns, which in some cases may be superfluous, and perhaps also objectionable, from an artistic point of view.

Changes in Leicester-square.

THE site of No. 28, on the eastern side, is being cleared for the erection of a block of shops, offices, and chambers, after the plans and designs of Mr. J. P. Crosby. No. 28, extending some distance in the rear, was formerly occupied by John Hunter, who in 1783 bought the twenty-four years' lease of the house and of what was then No. 13, Castle-street, together with some ground abutting against Leicester-court, entered from Castle-street, between the two houses. Upon that plot of land Hunter built, at a cost of 3,000*l.*, a museum for his anatomical collections and lecture and dissection rooms. Amongst the papers and drawings deposited in the Royal College of Surgeons by Sir Richard Owen's executors, we have seen, by the Librarian's courtesy, a plan of the two houses, the museum, and the classrooms, drawn by Hunter's chief assistant and curator, William Clift. The museum, which had since formed (until four years ago) the principal workshop of a firm of musical instrument makers, rose through two stories having a wide gallery midway and was lighted by three cupolas in the roof. In that house, formerly known as No. 12, Leicester-fields,* John Hunter held his Sunday-evening receptions, set up a printing-press and book-warehouse, and in 1785 established with Dr. Fordyce the Lyceum Medicum Londiniense. On the opposite side of the square No. 48 is about to be rebuilt, after the designs of Messrs. Treadwell & Martin, and the site has been cleared of Nos. 45-6, together with that of No. 62, Whitcomb-street in the rear. The new buildings for the Dental Hospital of London, at the square's south-eastern corner, have been erected by Messrs. George Trollope & Sons, contractors, from Messrs. Young & Hall's plans and designs, the Charity Commissioners having made, last March, an order for the sale for 18,000*l.* of the present hospital buildings, covering about 3,000 ft. superficial on the southern side of the square.

* In the auctioneer's catalogue (Stone Collection) of the sale of some of Hunter's household effects, including a set of painted hangings by Zucarelle, on September 24, 1806, the house is described as "his residence, No. 28, on the east side of Leicester-square." Hunter died in 1793.

Carshalton Park.

THE finely timbered grounds of Carshalton Park having lately been sold by the freeholder, Captain J. W. Blake Taylor, J.P., are being plotted and cut up for the erection of houses and villas. The property, with a mansion known as Mascall's, was purchased in 1696 of Sir Edmund Hoskins by Sir William Scawen, whose nephew and heir, Thomas Scawen, employed Leoni to design a new house upon a very extensive scale, which, however, was not erected. Leoni published his drawings for the house in his work upon the architecture of Leo Baptista Alberti. To Leoni are ascribed the stone piers, standing about 110 ft. apart, between which are the fine wrought-iron gates we lately mentioned, and which were unfortunately damaged by the fall of a tree in the avenue in the winter seven years ago. The piers carry, respectively, leaden statues of Actaeon and Diana. The park, surrounded by a wall now partly pulled down, about 2 miles in length, had been latterly the home of the Aitken family.

Electrical Installation Rules.

WE have received from the London and Lancashire Fire Insurance Company a set of rules which they issue for the guidance of their clients when fitting up electrical installations for light, heat, and power. They have been carefully drawn up, and will prove useful to both consumers and electricians. Although principally, they are not exclusively concerned with fire risks — for example, the only rule which is printed in capital letters is the 93rd, which runs as follows: "Where conductors carrying alternating currents are enclosed in metal conduits, the positive and negative conductors must be run in the same tube." When this is not done the inductive action set up is so strong that the lamps burn dimly, but there is, of course, absolutely no danger of fire. The only rule to which we take objection is the one on testing (180). In the first place it is ambiguous, as it may mean that either of the two insulation resistances mentioned must be above a certain minimum, or that both must be above this minimum. Again, the rule is quite inadequate from the fire-risk point of view, as no mention is made of testing the insulation resistance between the mains when the switches are turned on and the lamps are taken out of their sockets. It is, however, a step in advance when a Fire Office recognises that there are two insulation resistances to be measured. When will practical men awake to the fact that there are three?

EXHIBITION OF MODERN ILLUSTRATION.—It has been found necessary to postpone the opening of the Exhibition of Modern Illustration in the Indian Section of the Victoria and Albert Museum from Monday, January 7, until Monday, January 14. The private view will consequently take place on Saturday, January 12, instead of January 5, as previously announced.

COLLAPSE OF A BUILDING NEAR FLEET-STREET.—The ground floor of premises known as Nos. 3, 4, and 5, Gunpowder-alley, Shoe-lane, suddenly gave way on the 31st ult., with the result that one man was killed and two injured. Messrs. Eyre & Spottiswoode have recently taken possession of the building. At the time of the accident a large quantity of paper and other material was stored on the ground floor. At the moment the floor fell a man was in the basement and was buried beneath a large heap of *débris*. The police hastily removed the material, but when the body was discovered life was pronounced to be extinct. Two men—one named Charles Bradley, aged twenty-two, and the other, Henry Miller, aged twenty-one, a brother of the man who was killed—were injured in the fall.

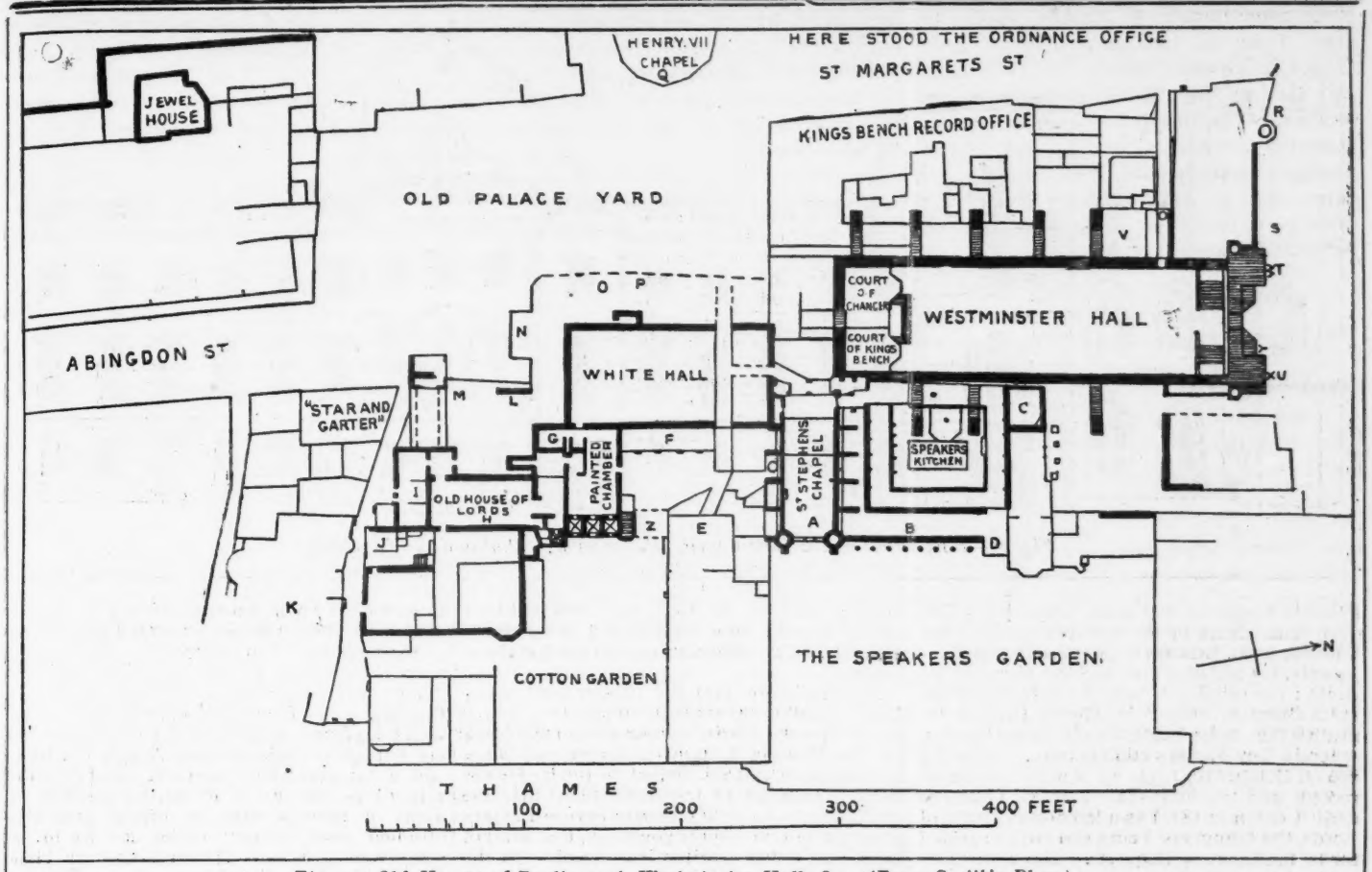


Fig. 1.—Old Houses of Parliament, Westminster Hall, &c. (From Smith's Plan.)

WESTMINSTER, OLD AND NEW: 1801-1900.

WESTMINSTER was accounted as a city during the ten years' tenure of the bishopric of Westminster by Thirlby, Bishop of Westminster, 1540-50, whose see comprised all of Middlesex, Fulham excepted. Letters patent passed under the Great Seal revive the old style by declaring that from November 1, 1900, being the date of the election of Borough Councillors, the Metropolitan Borough of Westminster, so constituted by an Order in Council of May 15 last, should be a city by name of the City of Westminster. We therefore may take the opportunity of recalling to mind some of the more important of the changes that during the last [hundred years have quite altered] the aspect of a quarter of the town which comprises the remaining portion of the ancient parish of St. Margaret, once co-terminous with the manor around the Benedictine monastery of St. Peter, and including the Royal palaces, with the seats of the Legislature and of the administration of justice.

The Abbey and Chapter-House.—Soon after James Wyatt (appointed surveyor to the Abbey on January 23, 1776) had begun, in 1803, the reparation of the exterior of Henry VII.'s Chapel a fire on July 9 in the roof and lantern of the Abbey church caused considerable damage, so that the necessary immediate expense of nearly 4,000*l.* prevented the Dean and Chapter from proceeding with the Chapel. In July, 1809, the work was resumed by Wyatt (*ob.* 1813), and completed by his son Benjamin in 1822, Thomas Gayfere the younger (*ob.* October 20, 1828) being the master mason. Gayfere bestowed infinite pains upon preparing the casts and drawings; the latter he and his foreman, Richard Lane, made at his house in Abingdon-street. The "Committee of Taste" chose Bath stone from Coombe Down, with Hopton Wood stone for the window-sills, and the Commons voted an aggregate grant exceeding 42,000*l.* In 1814, Gayfere, under Benjamin Dean Wyatt's directions, renewed the south transept marigold window, filled with stained glass by Thomas Ward and J. H. Nixon in 1847. Edward Blore (*ob.* 1879), architect to the Abbey, restored the north side of the nave in 1849, and designed choir stalls to replace the debased Gothic stalls erected by Dean Thomas. Sir George Gilbert Scott, appointed architect to the Dean and Chapter in 1849, Samuel Cundy being master mason, restored, 1865-73, the Chapter House [February 10, 1872]* built in 1250-6 and wantonly converted, after the removal in 1547 of the Commons to St. Stephen's Chapel, into a depository of public records. He designed the marble and alabaster reredos, by Messrs. Poole, the Abbey masons, with the altar table, by Messrs. Farmer and Brindley [November 9, 1867], and the two transept wrought-iron screens and gates, by Potter [October 11, 1856]. Scott restored the south transept gable, and began the restoration of Solomon's Porch, north transept, completed (with the wall arcading and tracery in the gable) by his successor, J. L. Pearson, who also, in 1878-91, restored the east end of the choir and the south exterior of the nave and aisle, stone from the Chilmark and Wardour quarries being largely used. Bernasconi had restored the altar screen in artificial stone after Wyatt's drawings—the present frieze and sculptured groups are by Mr. H. H. Armstead, the mosaic of the "Last Supper" by Dr. Salviati, of Venice, after Messrs. Clayton and Bell's designs; the carrying through of the work being mainly due to the efforts of Sub-Dean Lord John Thynne (*ob.* 1881). Scott also planned and designed some residences for the Canons. This journal should not fail to cite the burial in the Abbey of Sir William Chambers (1796), James Wyatt (1813), Sir Charles Barry (1860), Sir G. G. Scott (1878), G. E. Street (1881), and J. L. Pearson (1897); also of Thomas Banks (1805), Telford (1834), and Robert Stephenson (1859); Samuel Arnold (1802), William Shield (1829), Muzio Clementi (1832); Sir William Sterndale Bennett (1875); Sir Charles Lyell; and William Spottiswoode.

Thus far the Royal Commissioners' scheme (1891) for a monumental Chapel as an annexe to the Abbey has come to nought; meanwhile, the demolition in December, 1895, of Nos. 1-4, Old Palace-yard, and 1-3A, Poet's-corner, with the laying out of a garden on their site, afford a fine prospect of the Chapter House and the Abbey from the south-east. On February 16, 1884, and December, 27, 1890, we illustrated James Fergusson's and J. L. Pearson's proposed additions to the Abbey.

St. Margaret's Church.—S. P. Cockerell, in 1798-9, restored the interior, and built a new roof, with galleries, &c. Scott carried out further improvements and refittings. The east porch (J. L. Pearson, 1894) was the gift of Lady Sherbrooke in memory of her husband, Robert (Lowe), first Lord Sherbrooke, and contains his bust by Mr. Ezekiel, of Rome. In 1807, J. T. Groves, as surveyor to the Commissioners for improvements around the Church, raised the level of the graveyard; in 1881-2, about 4,000*l.* was expended, under J. L. Pearson's superintendence, in laying out the churchyard and the Abbey burial-ground, placing the railing that divided them close to the Abbey's north side, and sinking the gravestones beneath the surface.

The Houses of Parliament.—Under Acts passed in 41-6 Geo. III. were acquired various buildings on the east side of Old Palace-yard, on the south side of New Palace-yard by the north front of the Westminster Hall, between Henry VII.'s Chapel and St. Margaret's Church, and along the west side of St. Margaret-street. The houses on the east side of Old Palace-yard gave place to James Wyatt's front to the House of Lords—the Court of Requests whither the Peers had migrated after the passing on July 2, 1800, of the Act of Union with Ireland. Comparing W. Capon's large-scale plan, 1793-1823, with Soane's, 1795, C. J. Richardson's (before the fire), 1835, and J. T. Smith's, 1807 (see fig. 1), we see that amongst the demolished buildings in Old Palace-yard stood, as reckoned from north to south, the Court of Wards and Liveries at the Hall's south end, Bellamy and Kew's, the Commons entrance, the "Ship" tavern, Casteel's (a very old house), and "Queen Elizabeth's Pear-tree" tavern, "Waghorn's" coffee-house, and the (old) Lords entrance facing south in the then north-east angle of the yard, the (old) Ordnance Office, and the (old) King's entrance and "Star and Garter" tavern at the two corners of Parliament-place that led to Parliament-stairs. The two last-named stood directly opposite No. 5, Old Palace-yard, now Mr. Labouchere's house, and Bellamy's opposite Poet's-corner. James Wyatt reconstructed for the Lords in 1800-1 the Court of Requests or White Hall, which is supposed to have been the great hall of the Confessor's palace; against its west wall stood the Groom Porter's. For the later King's entrance and Royal Gallery, Soane, appointed in 1791 clerk of the works at St. James's Palace and the Houses of Parliament, pulled down, in or about 1823, the Prince's Chamber, and the former House of Lords situated between Prince's Chamber (south) and the Painted Chamber (north), the west wall of the latter abutting against the east wall, at its south end, of the Court of Requests. (For illustrations of the old Houses of Parliament and the Painted Chamber, see lithograph in this week's issue.)

* Dates in *square* brackets relate to illustrations in the *Builder*. Mr. Henry Poole, master mason, 1856-92, died on February 25, 1892.

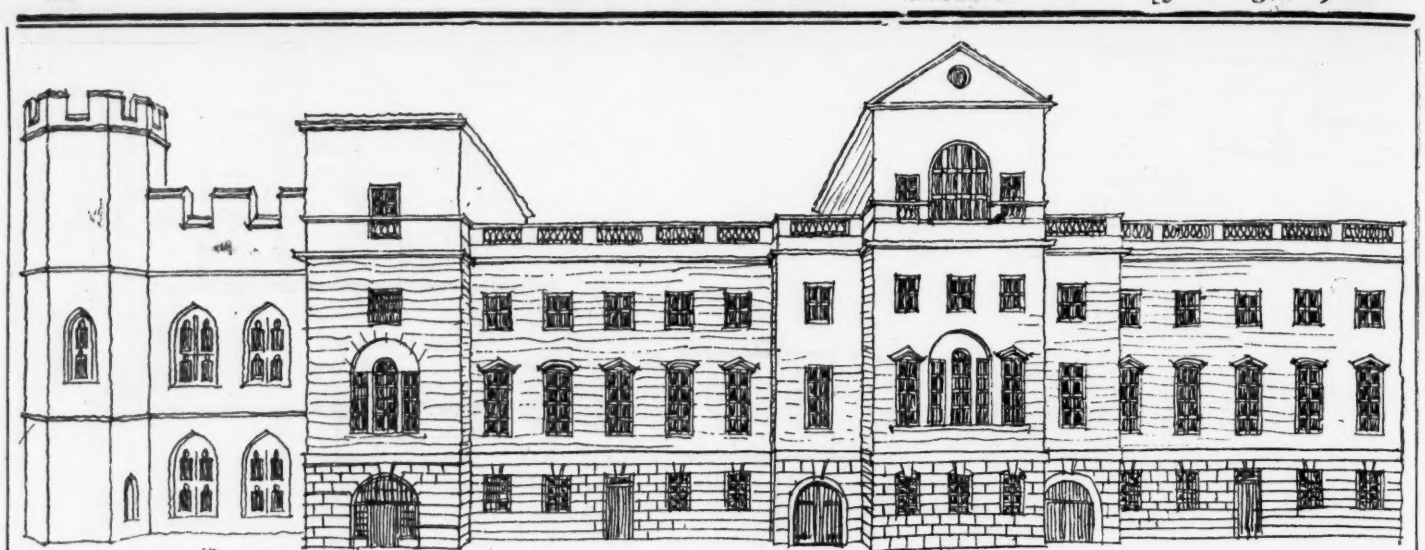


Fig. 2.—West Front of the Law Courts, Westminster. (Pulled down in 1883.)

Prince's Chamber was built *temp.* Henry III. over foundations of the Confessor's day; the Painted, or St. Edward's Chamber formed, reputedly, his bed-chamber and the scene of his death; the original House of Lords, or Parliament Chamber, rebuilt by Henry II., had beneath it the vaults, being the old palace kitchen, wherein Guy Fawkes laid his train. After the fire on October 16, 1834, Sir Robert Smirke reroofed and refitted the Painted Chamber (pulled down in 1852) as a temporary House of Lords, the Commons being similarly provided for in the Court of Requests. The Lords first sat in their new House on April 15, 1847, the Commons in theirs on November 4, 1852.

On July 17, 1835, a Royal Commission was issued for choosing a site and obtaining designs. The acting Commissioners, Hanbury Tracy (Lord Sudeley), Sir Edward Cust, Thomas Liddell, and George Vivian—Lord Duncannon being First Commissioner of Woods and Forests—were instructed to select not less than three, and not more than five, designs. Of the ninety-seven sets they chose on February 29, 1836, that marked with a portcullis, and for the most part drawn by Barry's own hand. They awarded premiums of 500*l.* apiece also to—in the order named—Buckler, Hamilton, and William Railton (*ob.* 1877). The other competitors included Professor Cockerell (*ob.* 1863), Thomas Hopper (*ob.* 1856), Rickman and Hutcheson, James Savage (*ob.* 1852), Sir Robert Smirke (*ob.* 1867), Robert Wallace, J. Burgess Watson (*ob.* 1881), John White the younger, William Wilkins the younger (*ob.* 1839), and Lewis William Wyatt (*ob.* 1853). The coffer dam for the river front was begun in the autumn of 1837. In the autumn of the following year, Barry, with others, made a tour in Great Britain to choose a suitable stone. The terrace-wall, 940 ft. long, of Aberdeen granite was begun in the next spring. On April 27, 1840, Lady Barry laid the first stone of the superstructure at the angle of the plinth of the Speaker's house nearest to the bridge, and on December, 22, 1843 (her birthday), she and her husband laid the first stone of Victoria Tower. The exterior material is fine magnesian limestone from Anston, Yorkshire; the interior is mostly of Caen stone; the fabric rests upon a concrete bed 12 ft. thick; the inner brick walls carry floors upon cast-iron bearers, with brick arches turned from girder to girder; the wrought iron roofs are covered with galvanised iron plates, and timber has been very sparingly employed; on the whole first floor there is no step. Barry gave the superintendence of the stone-carving to John Thomas, and that of the wood-carving to A. W. Pugin; he himself designed the canopy of the throne in the House of Peers. The Queen made her first State entry into the Victoria Tower on February 2, 1852, at the opening of the new House of Commons; on the 11th of that month she knighted Barry at Windsor. Charles Barry assisted his father during the progress of the works, and E. M. Barry (*ob.* 1880) after Sir Charles's death in 1860, completed the structure. His work includes the restoration of St. Stephen's crypt [July 9, 1864], the arcades and enclosure, New Palace-yard [January 11, 1868], and in 1866-9 the Queen's robing-room and staircase, and the decoration of the central octagonal hall. In the crypt the seven windows are by Hardman, the decorations by Crace and Messrs. Clayton & Bell, the wrought-iron railing around New Palace-yard is by Hardman, Mr. H. H. Armstead carved the statues of kings.

The Clock.—In 1851 the Government asked Lord Grimthorpe, together with Airy, Astronomer-Royal, to draw specifications for a clock for the Victoria Tower. Vulliamy and other leading clock-makers, invited to tender for the work, demurred to the stipulation that the clock was to be guaranteed to perform within a margin of one minute per week, that limit of error being, they averred, too small. So the work was entrusted to Mr. E. J. Dent (*obiit.* 1853), who agreed to make a clock after Lord Grimthorpe's designs. For that clock Lord Grimthorpe invented the double three-legged gravity escapement, as well as a new maintaining power and a novel contrivance for letting off the hours in order to satisfy another one of the conditions, which required that the first blow of the hour should be made within one second of true time. He also devised for the clock a zinc and steel compensation pendulum, of which the principle was since adopted for the standard sidereal clock at Greenwich Observatory.

Sir Charles Barry's plan, extending over nearly eight acres, covers more ground on the south, north, and east sides than did the former Houses. J. T. Smith's plan (fig. 1) shows that at the time of the fire the House of Lords (Court of Requests) stood with its north and east walls closely against the angle of Old Palace-yard, the west wall being in alignment with the longer axis of Westminster Hall; between the Hall and the Court of Requests lay the House of Commons, now represented by St. Stephen's Hall above the chapel crypt or St. Mary-in-the-Vaults; on the Hall's east side are Star Chamber-court and the court of the later Cloisters with the Chapel or Oratory built *circa* 1530 by Dr. Chambers, last Dean of the College, and restored by Barry [October 25, 1851]. Star Chamber-court marks the sites of the old stables and Exchequer. The Painted Chamber's site is that of the Peers' Lobby Corridor (west), to the north of which is the Judges' Court, where stood the (old) House of Lords, and next south of that lay the Prince's Chamber. The present Central Hall with its corridor and Peers' Lobby (south) and corridor and Commons' Lobby (north) are built over the Cotton and the Speaker's Gardens. On December 13, 1884, January 24, March 21, and July 11, 1885, we illustrated Charles Barry's modifications of his father's designs for the completion of Westminster Palace and treatment of Westminster Hall, by enclosing the Hall within a building to extend from Old Palace-yard to Bridge-street, and so forming a quadrangle around New Palace-yard, at an estimated cost of 500,000*l.*

Westminster Hall.—In 1819-22, under the superintendence of J. W. Hiort, of the (old) Board of Works, Thomas Gayfere, mason to the Abbey, restored the north and south ends of the Hall, together with the embattled towers at the sides of the north porch, attributed to William of Wykeham; slate was substituted for the lead upon the roof, into which dormers were introduced; the interior roof, constructed of the *quercus densiflora*, was repaired with forty loads of oak timber brought from old ships broken up in Portsmouth Dockyard. In 1834-6 Sir Robert Smirke recased the outside of the west wall and refaced the inside walls with Huddlestone ashlar 6 in. thick, and laid the present pavement at the level of the old Purbeck stone pavement of *temp.* Richard II., which he found at a depth of 1 ft. 3½ in. below the Yorkshire flagstone floor laid at the latter end of the eighteenth century. At a depth of 2 ft. 9½ in. below the Purbeck pavement he found a hard surface of gravel and clay rammed level, beneath which lay 8½ in. of pure red sand, and beneath that a layer 7½ in. of masons' rubbish, Caen, Reigate, and rag stone, &c.* Smirke erected the cast-iron louvre or lantern modelled after its late fourteenth century predecessor. The upper row of openings in the roof were made in 1843 for an exhibition of drawings. Sir Charles Barry added a bay to the Hall, removing the south window for his archway to St. Stephen's Porch, on the site of the Court of Wards and Liveries, and rebuilding it in the porch [February 18, 1843, September 3, 1853, and April 4, 1885]. The stained glass, of heraldical achievements of our sovereigns and the founders of their houses is by Hardman (1847-52), whose firm of John Hardman & Co. restored the nearly one hundred panels of leaded glass and the outer diamond glazing after the dynamite explosion on Saturday, January 24, 1885. Into the Hall's hitherto unbroken area have been obtruded (1886) two flights of steps that lead into the Journal, Private Bill, and other offices erected by J. L. Pearson on its west side. The Select Committee, of which Mr. G. Shaw-Lefevre was chairman, reported (April 27, 1885) in favour of Pearson's scheme, at an estimated cost of 5,000*l.*, for completing the corner of St. Stephen's Porch in harmony with Barry's work, 8,000*l.* for rebuilding and repairing the flying buttresses and repairing the west wall, and 13,500*l.* for the two-storied gallery and the building at right angles to the Hall. Having expressed *passim* our opinion upon that piece of sham "restoration," we will say here only that the building, based upon little more than conjecture, stands over the ground which Soane so skilfully used. In our lithograph will be found a sketch of the buttress uncovered when the Law Courts were removed, and since refaced in Pearson's "restoration."

The Law Courts.—The Court of Queen's Bench held its final sitting at Westminster Hall on December 21, 1882. On December 4, Lord Chancellor Selborne and the Judges had proceeded down the Hall in solemn state on their way to receive the Queen at the opening of the new Courts of Justice. Descending the steps from St. Stephen's Porch they passed between the places where, until eighty years ago, the Courts of Chancery and King's Bench had sat since their permanent establishment there in 1224. To Soane was given a confined space between the Hall and Kent's King's Bench Record Office. At the north end, facing New Palace-yard, stood the Court of Exchequer, formerly Queen Elizabeth's ballroom and breakfast-room, south of which were the Court of Common Pleas (Queen Elizabeth's

* See a letter from his son in the *Times* of January 3, 1895, and S. Smirke's communication to the Society of Antiquaries on February 4, 1846 ("Archæologia," vol. 26)

Fig. 3.—Ashburnham House and Entrance to Dark Cloister; showing the late Dr. Turle's House (over Cloister Entrance), pulled down in 1883.

bedroom), and Old Fish-yard. Soane constructed (1820-5) a corridor under, and inserted Judge's chambers between. the six or seven buttresses, and plotted the remaining area from north to south, for the King's Bench and Bail Courts, the Courts of Exchequer and Common Pleas, the Vice-Chancellor's (afterwards the Rolls) Court, and the High Court of Chancery; for the Admiralty Court he provided in an upper-floor at the south. Soane's courts (see fig. 2) were justly extolled for the dignity, variety, and acoustical properties of their interiors, as well as for their lighting, ventilation, and means of access. The King's Bench Record Office was originally designed, after the Palladian mode, by Kent with, some say, Ripley's help, in or about 1738-9, for the records of Parliament, the estimate amounting to the large sum of 67,067*l.* The central block and south wing appear in plate IV. of Malton's "London and Westminster," 1792; James Wyatt probably added the north wing in 1813.

Barry pulled down most of the south wing and return front to Old Palace-yard in 1850, and in January, 1883, was begun the demolition of the west façade, the stones being taken to the Albert Palace, Battersea Park. Soane's courts speedily followed. Their removal exposed the buttresses and lower walling of *temp.* Richard II., which occasioned the controversy already referred to. The handsome marble chimney-piece in the judge's room behind Queen's Bench Court was removed to the Lord Chief Justice's private room at the Royal Courts. In the then Margaret-street, opposite Kent's Record Office, stood the Ordnance Office, 1784, by William Tyler (*obiit.* 1801), which was pulled down in terms of the Act passed on June 10, 1805. George Canning's statue marks its site.

Westminster Bridge, Canon-row, and New Scotland Yard.—An Act, 9 Geo. II., c. 29, passed in 1736, constituted a commission to choose the design and materials of a bridge, without houses upon it, and to raise 625,000*l.* by a lottery. Batty Langley made some designs, but in May, 1738, the Commissioners appointed Charles Labelye, a Swiss, whom it is said they invited to England, as "engineer" at a salary of 100*l.* a year with 10s. a day as subsistence money. The original proposal was to build the superstructure of wood, and Labelye's commission related to the construction of the stone piers only. The first pile was driven on Wednesday, September 13, 1738, after a method contrived by James Vauloué, a watchmaker, to whom the Royal Society voted their medal.

In the "Crowle" Pennant is an engraving by W. H. Toms, 1738, after H. Gravelot's drawing, of Vauloué's three-horse engine and one of W. Etheridge's machine for sawing off, under water, the piles used to support the centerings. Labelye built his piers upon caissons which he floated into position and then sank with loads of stone. In March, 1740, the preceding winter's frost and ice having destroyed the piers, a stone bridge was agreed upon; the last stone was laid on October 25th, 1746, yet the bridge was not opened throughout until November 18, 1750, as one pier and two arches were re-built. The bridge (see view in lithograph), 1,223 ft. long and 44 ft. wide at the arch-soffits, had fifteen semi-circular arches with channelled voussoirs, and spans diminishing from 76 ft. (middle arch), to 25 ft. (two end arches); the bridge-ends had at first a gradient rate of 1 in 15, since changed to 1 in 22-3. Thomas Gayfere the elder was chief mason, the builders being Andrews Jelfe and Samuel Tufnell. In the British Museum is a bound volume, Addit. MSS. No. 27,587, of Jelfe's cash accounts, and a mass of letters he wrote, October, 1740—June, 1744, mainly concerning the progress of the works and the supply of Portland, Kentish rag, Purbeck, and Cornish Moor stone. The cost is generally stated to have amounted to 218,200*l.*, with 170,700*l.* for the approaches, and Bridge-street on the site of the Long Staple, but an official return made in 1863 gives the total cost as 393,189*l.*, whereof 145,057*l.* was paid to the builders, and 248,132*l.* to other parties, with 109,054*l.* for the approaches.*

In 1823 Telford found that the substructure of the piers had sunk considerably; the subsequent removal of old London Bridge increased, as he foresaw, one of the causes of the settlement; two or three piers gave way, and in August, 1846, the bridge was closed to traffic. The fabric was relieved of, it is said, 30,000 tons weight by the substitution of a lower parapet, the removal of the high canopies from the alcoves, and the lowering of the roadway. Some of the alcoves have been re-erected in Victoria Park. Sir Charles Barry proposed, and we believe made designs for, an iron bridge of five arches, in the Gothic style. Thomas Page's bridge was begun in July, 1854, upon a tender for 201,000*l.*, and opened in its entirety on May 24, 1862. The total cost amounted to, we believe, 206,000*l.* The old bridge was first lighted with gas on December 31, 1813, from the Gas Light and Coke Company's works, originated by F. A. Winsor, and established on the site of the Bower tea-gardens, Horseferry-road, in 1812. In November last the London County Council resolved to re-build Lambeth Bridge (Messrs. Barlow), finished in 1862 at a total cost of 48,924*l.*

Near the north end of the bridge stands St. Stephen's Club, by John Whichcord the younger [April 11, 1874]. The building in Canon-row, distinguished by its Ionic portico at the top of a flight of steps, and its spacious circular hall, which William Pilkington (not William Atkinson, as is generally said) designed, 1816, for the Ordnance and Transport Office, served latterly for offices of the Civil Service Commission. It gave place last year to some offices and a police station, by Mr. J. Dixon Butler, official Architect and Surveyor to the Receiver for the Metropolitan Police District, as an addition to the adjacent headquarters, known as "New Scotland-yard," erected in 1888-90, on the site, 150 ft. by 200 ft., of the abortive Grand National Opera House. New Scotland-yard, planned and designed by Mr. R. Norman Shaw, R.A., was built by Messrs. John Grover & Son, as a total cost of about 120,000*l.* Close by was the original home of the Royal Architectural Museum [January 3, 1851], founded by Sir G. Gilbert Scott and Beresford Hope, in 1851, and removed to No. 18, Tufton-street, formerly Bowling-alley (Ewan Christian and Joseph Clarke), in the summer of 1869.

Broad Sanctuary and Dean's Yard.—The former Guildhall or Sessions House was erected in 1804-5 after C. P. Cockerell's designs [May 14, 1892] on the site of the meat market (1751) which had been established there as early as 1568, and stood over part of the foundations of the Sanctuary Church, of (reputedly) Edward the Confessor's time, and of the bell tower built by Edward III. for the use, it seems, of the Minster. Cockerell's Guildhall, constructed of brick and quadrangular on plan with recesses at the angles, had its principal court in the centre lighted by round-headed windows between the angle piers of an octangular tower, with a pointed roof carrying a lantern and vane. Above the cornice moulding of the piers that ran all round was a blocking course, surmounted with a light and lofty balustrade, having three panels in each face. the main front had a tetrastyle portico, of the Doric order, with a pediment. It was reconstructed (1893) by Messrs. Higgs & Hill, at a cost of nearly 20,000*l.* (with 3,000*l.* for furniture and fittings) for the Middlesex County Council after the designs of the County Surveyor, Mr. F. H. Pownall. On the second floor are an octagonal council chamber, 36 ft. by 36 ft., committee, ante, reading, smoking, and cloak rooms, with the County Surveyor's offices; on the ground floor are two courts, offices for the executive staff, private rooms, &c. After the burning of the Houses of Parliament (1834), Bellamy's stock of wines was removed into the vaults beneath the Sessions House, and thence to Parliament-street. The vaults had formed the cellars of the (later) "Quaker" tavern in Thieving-lane. The monument (Sir G. G. Scott—the St. George and Dragon is by J. Clayton) erected in memory of "old Westminsters" who fell in the Crimean and Indian Mutiny campaigns, stands next, south-east, to the site of the old Gate House, pulled down in 1760, and next, east, to that of the Cheyney Gate. Scott was architect of the block of houses, facing northwards, between the Jerusalem Chamber and the end of Victoria-street [March 4, 1854]. In fig. 3 is given a sketch of part of the east side of Dean's Yard as it appeared before 1883, when Dr. Turle's house was pulled down and other alterations made. For the Westminster Hospital, founded in 1719 in James-street, competitive designs were made by Sir Charles Barry; it was built at a cost of 27,500*l.* in 1832-3, by W. Inwood, his son Charles Frederic Inwood (*obiit.* 1840) assisting him in the work; two clinical laboratories were added last year. The Royal Aquarium, by Mr. A. Bedborough [May 1, 1875, and January 22, 1876] was opened on January 22, 1876. S. S. Teulon designed the memorial fountain to Sir Thomas Fowell Buxton, Bart., 1865 [January 27, 1866]. On June 24, 1891, was laid the first stone of the Church House, built by Messrs. John Thompson after the designs [January 2, 1897] of Sir Arthur Blomfield, who also designed the case for the organ, by Messrs. Lewis & Co.; the second block, for the House of Laymen, begun in the autumn of 1899, stands on the site of the old Westminster Library in Great Smith-street. The total estimate amounts to about 200,000*l.*

(To be concluded in our next.)

* Mr. R. Bissell Prosser, *s.v.* "Labelye," Dictionary of National Biography, cites a model of the bridge at the Ecole des Ponts et Chaussées, and the original drawings, signed by J. Gayfere, preserved in the library of the Institute of Civil Engineers, where, too, is Francis Wishaw's description (1838) of the edifice, for which he gained the Telford Medal. On February 27, 1751, an honorarium of 2,000*l.* was awarded to Labelye.

THE GRAND THEATRE, ISLINGTON.—This theatre, which was destroyed by fire in February last, has now been rebuilt. Formerly the exits were all on one side of the house, but now additional exits and staircases have been built on the other side, in compliance with the requirements of the County Council. New exits have also been provided from the stage and the dressing-rooms, and that part of the theatre which is behind the proscenium has been completely rebuilt and rearranged. An asbestos fireproof curtain now separates the stage from the auditorium. The latter has been reconstructed much on the old plan, but the upper part of the private boxes has been removed, to allow of additional accommodation in the amphitheatre; and the seats in the area have now been set out in curves instead of, as formerly, in straight lines, to give a better view of the stage from the sides. Hot-water pipes have been laid throughout the house, and the electric light has been installed both behind the scenes and in a part of the auditorium. The ceiling and the walls have been decorated with hand-painted panels after the designs of the architect, Mr. Frank Matcham.

Illustrations.

ILLUSTRATIONS OF SIR CHARLES BARRY'S WORKS.

THE first five plates given with this issue are illustrations of the work of Sir Charles Barry, and are all referred to in the article on him on another page.

They include an elevation of his design for concentrating the Government Offices in one building, with block-plans of the building and the district as proposed to be laid out, and a sheet of sections and elevations of the various buildings indicated in the plan; both these are from original drawings in the possession of Mr. C. A. Barry, the architect's grandson. The drawings of the Victoria Tower and the Halifax Town Hall were specially made for us by Mr. W. Monk. Sir C. Barry's view of the Ruins of Karnac is reproduced from a pencil drawing in the possession of Sir J. Wolfe Barry, to whose kindness we and our readers are indebted for enabling us to give this beautiful example of Barry's early work as an architectural sketcher.

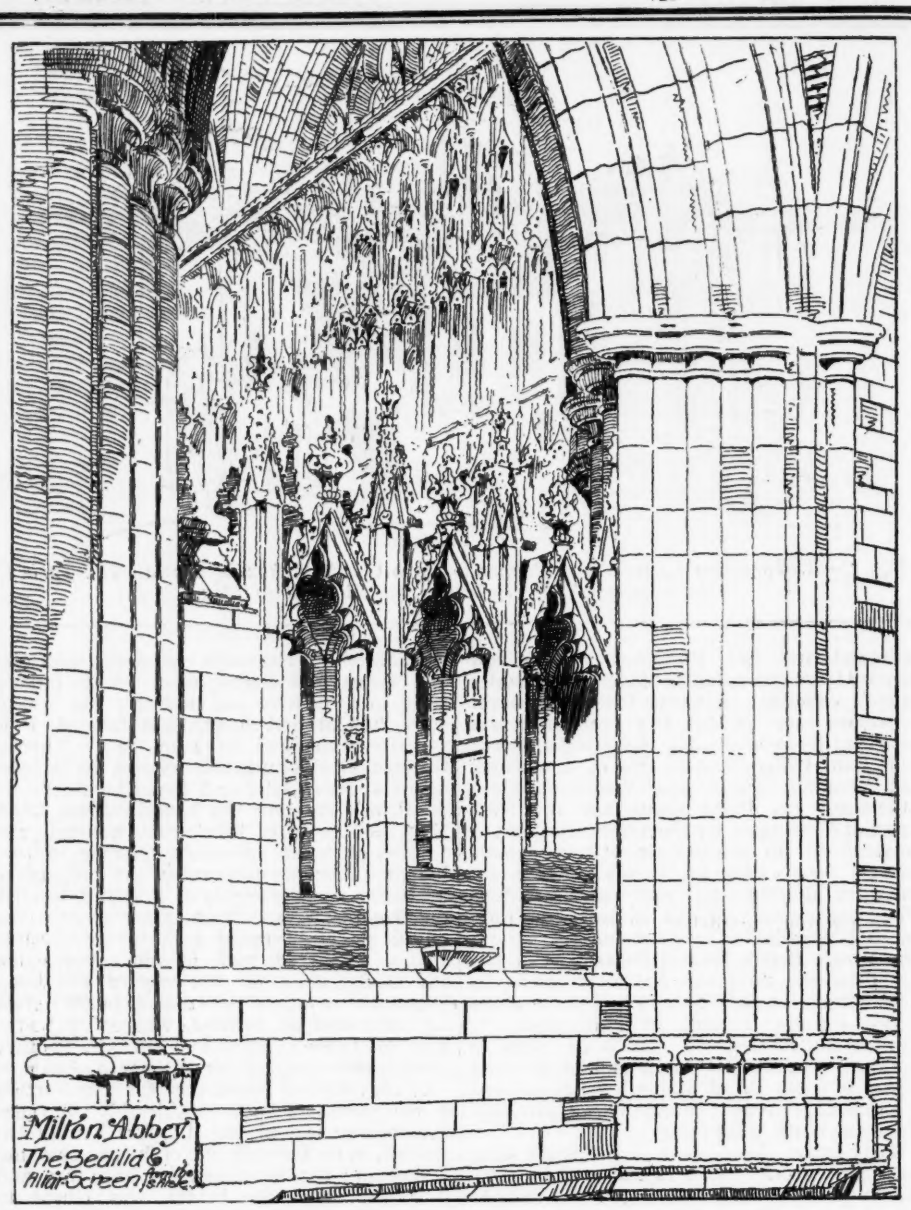
MILTON ABBAS.*

BEFORE the victory of King Athelstan over the Danes at the Battle of Brunenburgh, he is said to have had his success foretold him in a vision on the hill which rises east of the Abbey Church of Milton, on the spot where the little Chapel of St. Catherine now stands, and to have founded a monastery here in or about 937. The establishment seems to have been originally one of secular canons, but according to the Saxon Chronicle these were expelled by King Edgar in 964 and monks substituted. Like Sherborne, Milton was a house of Benedictines, and its church is a large and interesting, although incomplete, example of the fine buildings characteristic of the order.

The extent of the original building is unrecorded, but in 1309 the buildings were sufficiently destroyed by a fire, caused by lightning, to necessitate the rebuilding of the church. According to Nicholas Trivet, the church was burned on Tuesday, September 2, including "the bell tower and bells, the ornaments of the church, and the evidences of the monks."† In 15 Edward II. a patent was granted "pro constructione abbatie," and from the architectural evidence, building must have continued from time to time up to within a few years of the Dissolution in 1539, 31 Henry VIII. The site and buildings were then granted to John Tregonwell, in consideration of 1,000*l.* and the forfeiture of a pension of 40*l.*, and after, in later years, passing into the hands of the Damer family, it came to its present owners, the Hambros. The monastery was pulled down with the exception of the abbot's hall, and the house designed by Sir William Chambers about 1771 in debased Gothic of the period. The church underwent a "restoration" by Wyatt in 1789, and in 1865 the whole church was restored by Sir G. G. Scott.

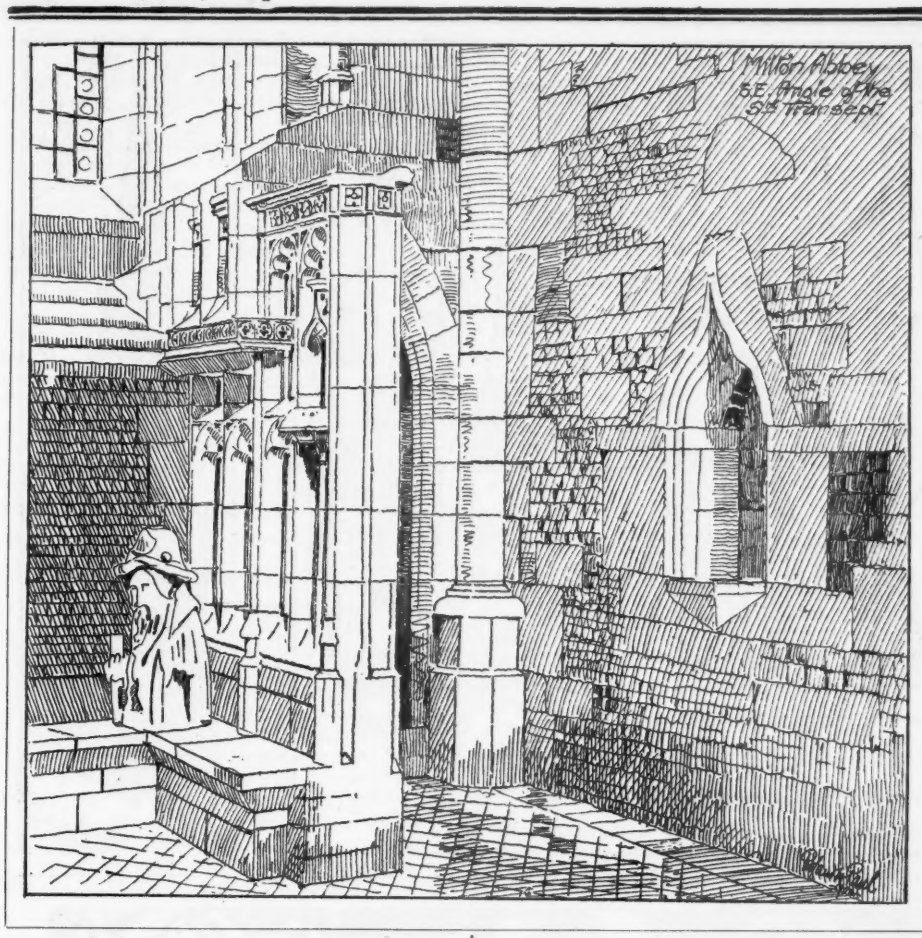
The planning and extent of the church previous to the fire of 1309 is now lost, but on the south side of the presbytery—east of the sedilia and east of the stalls—are two openings in the wall, left probably at the time of Scott's restoration, in which are to be seen remains of enriched Norman arches. The curious arrangement of the presbytery with alternate bays closed by solid masonry, suggests the possibility of the earlier work having been encased where it was not considered worth while to remove it, and it is quite possible, owing to the great scale of the church as replanned, that the present incomplete buildings occupy the site of the entire length of the earlier church. There was a Lady Chapel (probably of three bays, as at Sherborne); a choir and presbytery of seven bays, with aisles and an eastern ambulatory; a large south transept; a "crossing"; and a north transept of one bay. On the "crossing" rises a central tower of similar character to that at Sherborne. The various parts were built in the order named, the work having commenced probably, as was usual, at the east end. The size of the north transept, although one of the latest parts of the building, was no doubt restricted by buildings already standing north of it. The nave of the church seems never to have been rebuilt. The aisle walls exist for a few feet westward of the crossing, and show the jamb of windows. At the time of the last restoration excavations were made with the idea of tracing the foundations, but nothing was discovered. At the Dissolution the Lady Chapel was pulled down, and in 1737 the chapel or sacristy (as it probably was) on the north side of the presbytery was destroyed. At the time of Wyatt's restoration (1789) the interior of the church seems to have been ruthlessly despoiled of its fittings, and the details of interest recorded by Rev. Thomas Warton, in 1781, quoted by Hutchins, were probably by then swept away. In the present century, when the church was again restored by the late Sir G. G. Scott, the stone screen walls at the back of the choir stalls, which were solid up to that time, were pierced with arcades, the screen wall on the north side of the altar, opposite the sedilia, being similarly treated. The encaustic paving tiles found in the floor of the presbytery were removed to St. Catherine's Chapel on the hill eastward, where they are now to be seen, and modern ones by Godwin put in their place.

Beginning at the east end, we have but the site of the Lady Chapel, although a few years ago the foundations were visible. Against the east wall of the presbytery are three arches and vaulting shafts of the ambulatory, and a portion of the outer walls, with the window jamb in the north wall, remains in continuation of the aisle walls. The details of caps and bases to the columns supporting the vaulting agree in date with that of the presbytery, and the features of the Lady Chapel can therefore be roughly determined. The choir and presbytery, remarkable for their length, remain in a very perfect state. The *Pulpitum* is placed under the eastern pair of "crossing" piers, and the choir stalls occupy the first two bays eastward of it. The third bay is a blank wall, showing in the recess on the south side the remains of Norman work already referred to. The fourth bay is open, forming the upper entrance to the choir. The fifth bay is solid like the third, and the sixth has the sedilia and a piscina on the south, and a stone screen, similar to those behind the choir stalls, on the north. The seventh and last bay is like the third and fifth, and across its centre is the great altar screen wall, 2 ft. 6 in. in thickness, and allowing a space of nearly 4 ft. behind it. Midway between the west face of the screen and the piscina is another opening in the wall with the remains of an enriched Norman arch. The choir is one step above the "crossing," and six more steps lead up in the fifth and sixth bays to the altar. The vaulting is carried on long vaulting shafts mostly carried to the ground, but corbelled back at the western angles over the stalls and over the piscina near the altar. On the north side of the stone screen in the sixth bay was a chapel dedicated to St. John the Baptist. It is described by Hutchins:—"On the north side of the altar was a small chapel between two pillars. On the wooden work next the aisle, painted like marble, was this inscription in black letter:—'Benedic D'ne domum istam, que dedicata est in hon. . . . . S'cti Johannis Baptiste, Venientium in loco isto exaudi glorie sue S.s.'" Behind the sedilia and facing the south aisle is a semi-octagonal bracket (see sketch), and in the wall of the next bay westward are the remains of a lofty canopied niche, over which is a stone about 18 in. square, bearing the rebus of Abbot Wm. Milton—the initial W and a pastoral staff, a mill on a tun, and the date 1514. The niche has been elaborately coloured. In the wall of the third bay (facing the aisle) is a small segmental-headed recess, also bearing traces of colour. In the fifth bay (facing the presbytery) are several rings and hooks still remaining *in situ*, which were connected with the Lenten veil. The stalls, thirteen in number on each side, with six more against the pulpitum, are for the most part modern, although a good deal of the old work was re-used. Hutchins mentions the removal of eighteen old stalls to make way for pewing erected by Sir Jacob Bancks, and



* With this Abbey our series of the Abbeys of Great Britain is concluded. A list of those abbeys which have appeared will be found on page xxvii.

† Hutchins' "History of Dorset," vol. iv.



says that "the chancel, anciently part of the choir, was separated from the body by an old screen of wood, on which was I. H. S. and a neat piece of ironwork." At the backs of the stalls, which flank the entrance under the pulpitum, are two figures painted in oil on panel, that on the north representing the founder, King Athelstan, holding a church with three spires, a monk kneeling below, and an imperfect inscription above in black letter: Rex. Atelstanꝰ huiꝰ loci f[undator.] On the south side is the figure of a queen, holding what appears to be a parrot, but probably intended for a hawk, picking at the wing and claw of a bird. A white glove is held in the right hand. The panels measure 3 ft. 3 in. in length, and 1 ft. 8½ in. in breadth, and are probably late thirteenth century in date. There is another painted panel, now in the vestry at the east end of the south aisle, but of later date. The pulpitum, 6 ft. 6 in. in width, has a central entrance and two staircases leading to the loft over. There are two ogee-shaped openings on the stairs looking eastward, and on the north side of the entrance on its west face, is a small recess about 1 ft. in depth. The upper story projects about 6 in., and exhibits many evidences of having been built up with material from other parts now destroyed. The upper part of the western wall is largely composed of panelled and painted masonry, mutilated and for the most part inverted, and on the east side is a row of painted shields, which corresponds with the description of work formerly in the south transept and now destroyed. The side screen walls of the choir behind the stalls were, as already noted, pierced with arcading, during the restoration by Sir G. G. Scott in 1865. They are finished with a gabled coping somewhat similar to the side screens at Tintern Abbey. The sedilia on the south side of the altar are three in number. The pinnacles and upper parts generally have a good deal of modern work introduced. Their original condition is shown in a plate of details in Hutchin's "History of Dorset," vol. iv.

The aisles are a little over 13 ft. in breadth, and are lighted throughout by three light windows. The clearstory of the choir and presbytery has three light windows in the broad bays, and two light windows in the narrow bays, and high up in the east wall is a window of seven lights. At the east end of the north aisle are one or two interesting monuments, described later. In this aisle are three doorways. The one in the easternmost bay is probably post-Reformation, and there is a corresponding one on the south side (see view). In the fourth bay is a doorway opening outwards, which led into a "chapel," or more probably a sacristy, 25 ft. in length, and probably about 12 ft. in breadth. This was pulled down in 1737, and the doorway and the wall ribs on the exterior are the only visible evidences of it. In the first bay (east of the north transept) is a third doorway, coeval with the rest of the eastern arm, which appears, from the appearance of the adjacent buttress, to have led into another building. The shortness of the north transept, with the remains of a vaulted passage or slype on its north side, are clear evidence that the monastic buildings—in this case the chapter house and its surroundings—always existed at this point, and the buttress projecting eastward from the transept is obviously an addition of late date. There is also a record of a passage between the church and the building west of the "oriel" of the abbots' hall. This passage was of later date than the doorway, and it is possible that there was another side-chapel here, similar to the Wykeham Chapel at Sherborne.*

After the choir and presbytery, the next in order of date is the south transept. On the exterior the difference may be seen in the level of the string below the window-cills. The window tracery throughout is of later date. The transept projects two bays clear of the choir aisles, and is aisleless. The outer walls are of considerable thickness, and the buttresses of great projection to resist the thrust of the vaulting. At the south-east angle is a staircase turret, finished with a pyramidal cap with crockets and finial. In the south wall is a large window of seven lights filled with recticulated tracery. The glass is modern. The lower tier of side windows are of three lights, those in the upper tier being of four, except the window over the aisle, which is of two lights only. The design of the west face of the transept is the same as that of the east (shown in the view), with the exception of the parapets. This on the east and south is original, with ball flower ornament; on the west side, however, it is of pierced quatrefoils, the same in design as on the choir aisles, north transept, and central tower.

In this transept were formerly many points of interest. Against the east wall were the remains of two altars, or chantries, approached by "an ascent of three steps," "with two cornices of unequal height over them, which have been finely carved, gilt, and painted," and ornamented with remains of black letter inscriptions and armorial bearings. In the notes taken by Rev. Thomas Warton, D.D., in 1781, quoted by Hutchins, he says, "On the east side of the south transept is the ruin of a long, richly-wrought canopy, very high, projecting from the wall, and under it, all over the wall, was rich tracery work, now plastered up; and a fragment at one end remains of this piece of work, which was a chantry shrine, apparently about Henry VII.—perhaps the tomb of the great benefactor, William Middleton."*

In the south-west corner of the transept was a cross-legged effigy in armour, and a shield on the left arm, "on which was an obscure cross."†

At the present time, the only remains of an altar are near the S.E. angle of the transept (see sketch). In the south wall is a piscina of Decorated date, and in the angle the doorway to the stair turret. About 3 ft. 4 in. from the south wall, and projecting about 3 ft. 6 in. from the east wall, are the remains of a wall 1 ft. in thickness, panelled on its north side with a piscina near its west end. It is of Perpendicular date, and is probably a part of the altars referred to above. The platform on which the altars were placed has been removed, and the transept floor covered with modern tiling. The panelled work now forming part of the pulpitum was probably removed from the south transept. The cross-legged effigy has disappeared. There are traces in the plinth of the vaulting shafts of a screen which separated the transept from the rest of the church. The two western piers of the crossing, although similar in section, have different bases and plinth, and at a lower level than those of the eastern piers. The walls which block the western arch of the crossing, and the arches which would have led to the nave aisles are probably for the most part modern, although the nave never having been built, they may well stand on the site of temporary walls of pre-Reformation date. The present west porch is modern.

The north transept is entirely Perpendicular and only projects one bay beyond the aisles. There is a large eight-light transomed window at the north end, and long narrow three-light windows on the east and west sides. Against its north wall are the remains of a vaulted slype of four bays, and on the west side are the foundations of a large staircase turret which was evidently connected with the doorway, still visible in the north face of the western buttress. This buttress has been repaired in later times and on its west face are the names of churchwardens and the date 1683. The greater part of the adjacent buttress facing north is probably of the same date. The whole points to the probable existence of a staircase leading to the dormitory on the upper level over the slype, chapter-house, and other buildings, which must have existed here.

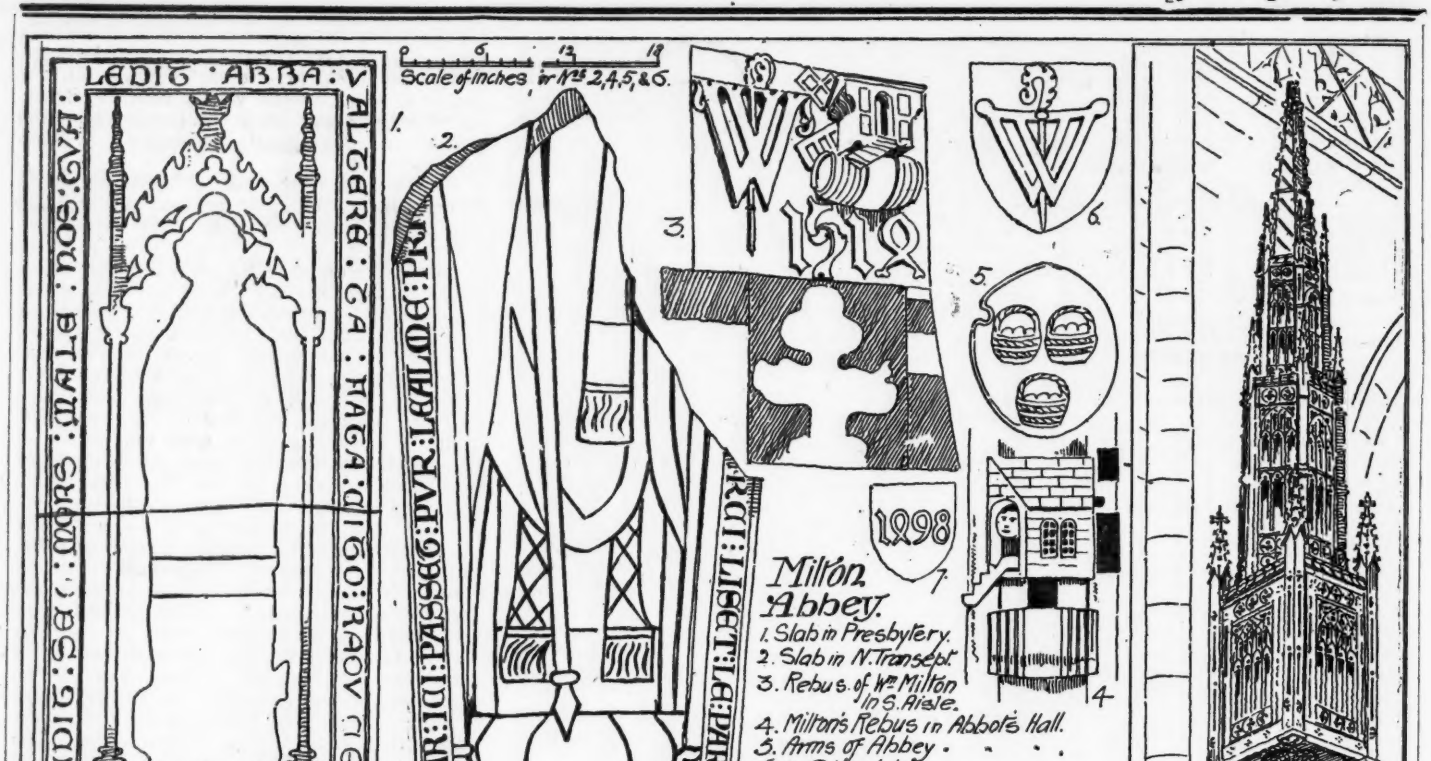
A great deal of work was apparently done to the church in the Perpendicular period—a large proportion of it doubtless being due to William Middleton, who was Abbot 1481-1525. The north transept with its parapet and those of the aisles of presbytery and choir, the parapet on the west side of the south transept, and the central tower, are all Perpendicular work, and the elaborate vaulting of the transepts and crossing includes, on the bosses, William Milton's initials and rebus. The flying buttresses of the choir and presbytery appear to have been added at the same period, and lastly, the great altar-screen which bears date 1492. On its west face is the inscription:—"Orate pro bono statu et animabus domini Willelmi Middleton hui 'alui' monasterii abbatis ac etiam magistri Thomae Wilken hujus parochiae vicarii et decretorum cancellarii qui hoc altare ad dei laudem suis honorifice depinxerunt sumptibus anno incarnationis domini nostri Jhū Xti millesimo quadringentesimo nonageñmo secundo." A good deal of the altar-screen is modern and probably of plaster, and the inscription is not the original, but copied from it. On the space behind the screen are several fragments, some Norman, others belonging to the altar screen, and preserving portions of the inscription.

The church must originally have been rich in shrines, relics, and monuments. Athelstan gave a piece of the cross, a great cross of gold and silver with precious stones, the arm and many bones of St. Sampson, the arm of St. Branwalader, and many others, and they were placed in the church in five gilt shrines.‡

Possibly most of these relics suffered at the time of the fire in 1309. The south transept would seem to have had a shrine in it (see *ante*) besides the cross-legged effigy, which

See *Builder*, April 3, 1897.

* Hutchins, iv., 404. † Ibid. iv., 403.
‡ Ibid., iv., 403.


Scale of inches for Nos 2,4,5, & 6.
Milton Abbey.
1. Slab in Presbytery.
2. Slab in N. Transept.
3. Rebus of Wm Milton in S. Aisle.
4. Milton's Rebus in Abbot's Hall.
5. Arms of Abbey . . . .
6.7. Shields . . . .
8. The Tabernacle" now in the South Transept.

has now disappeared. The monuments existing consist principally of grave slabs. One in front of the altar steps has the matrix of an abbot's brass and a marginal inscription: ABBA : WALTERE : TE : FATA : CITO : RAPVERE : TE : RADINGA : DEDIT : SED : MORS : MALE : NOS : TVA : LEDIT. There was an abbot Walter de Corfe, 1273, and another Walter Archer, 1392-1417. The slab more probably commemorates the former.

Further west, in the middle of the second bay of the choir, is a large stone, now devoid of ornament, possibly having been reversed at the restoration. Two are mentioned by Hutchins in this position, "in the passage between the chancel and choir." In the eastern bay of the north aisle is a brass to a monk: "Hic jacet Johes Artur hui loci monachus cuius anime ppicietur deus. Amen." Against the east wall is the monument of the Bancks family, and on the south side a canopied monument of Purbeck marble, with a brass of Sir John Tregonwell, to whom the abbey was given at the Dissolution. It bears this inscription: "Here lyeth buried Syr John Tregonwell knight doctor of the Cyvill Lawes and one of the maisters of the Chauncerie who dyed the xiii day of January in the yere of our Lorde 1565 of whouse soule God have mcy." Sir John is represented in a tabard kneeling at a priedieu, and at the sides and above the effigy are three shields of arms. In the north transept is an interesting example of an incised slab, with the lower half of the effigy of an abbot and a marginal inscription: (ME)RCI : LISET : LE : PARDVN : ICI : W.S : RI : PAR : ICI : PASSET : PVR : LEALME : PRI..... The initials W.S. are probably those of the abbot. There were two abbots, Wm. de Stokes, elected 1222, and Walter de Sudelynge, 1292, to either of whom this slab may belong. It was found at the time of the restoration at the west end of the south aisle. The Damer monument in the north transept is by Carlini, and the whole of the transept is raised one step, and the pavement composed of marble. In the south transept is a modern font, quite out of keeping with its surroundings, and the upper part of a figure of St. James said to have come from the parish church.

One of the most interesting possessions of the abbey church is the "tabernacle," a very beautiful piece of Perpendicular woodwork, now placed against the west wall of the south transept. Its original use is generally considered to have been for holding the pyx, although the interior bears evidence of its having once been used for bells. The general design is shown in the sketch. It is in three stages, the lowest square on plan, the two upper ones hexagonal, the whole surmounted by a spire. Two large irregular holes are still to be seen in the centre of the front of the altar screen, which was its probable position. In 1781, according to the Rev. Thomas Warton, it appears to have been divided, part of it being in the transept, and part on the north side of the altar. It has been elaborately coloured, chiefly in red and green, with a powdering of roses in places.

There are a few fragments of old glass in the east window, and some old quarries in the westernmost window of the south aisle of the choir.

The present abbey house, built by Sir Wm. Chambers, incorporates the Old Abbot's Hall, apparently built by Abbot Middleton. On various parts of the room, on the cornice and screen chiefly, are shields of arms, the arms of the Abbey, and initials, rebus, and mitre of Abbot Milton. On another is the date 1498. A fireplace has been inserted on the south side, otherwise the room remains in good preservation.

The parish church of St. James stood a little distance south-east of the church, but the village and church were rebuilt outside the park about a mile distant, and the site alone remains.

A short distance east of the church, on the side of the hill, is the ancient chapel of St. Catherine. It consists of a nave and chancel, and the main walls are Norman. Later additions have been made to it, and the west front cruelly spoiled by being rebuilt in attempted imitation of Norman. On the west jamb of the wall door, which is Norman, is a fragment of an inscription :—

INDULGENCIA : W : SCI : LOCI. C : : X.DIES. :

In the floor of the chancel are a number of encaustic tiles, removed here from the abbey church. There are a large number of different patterns, some of the best being here illustrated. Among the armorial tiles are the arms of Clare, Bigod, three lions *passant*, a shield *vaire*, another *checquée*, three swans, a cross between four lions *rampant*, within a bordure *engrailed*, the arms of the See of Exeter (the crosskeys and sword), two tiles manufactured at Malvern, one with an inscription and date 1456, and the second a four-tiled pattern with the arms of Clare. Besides these there are two knights on horseback (one with a spear, the other with a sword), a stag and hound, a dog in front of a tree, two birds, a star with six points, and several examples with conventional and foliage patterns. There are some border tiles with embossed patterns.

At Hilton church, north-west of Milton Abbas, are several panel paintings, with saints, removed from the abbey church, apparently at the time of Wyatt's restoration, and at Bingham's Melcombe church are several fragments of glass, said to have been brought from Milton.

The church was dedicated to St. Mary, St. Michael, St. Sampson, and St. Branwalader.

The arms of the Abbey were *sa*, three baskets with loaves of bread, *or*. The original number of monks is said to have been forty, but at the Dissolution the number had decreased to twelve.

The materials used in the abbey church vary, and this variation is largely a guide as to date. The whole of the eastern area (choir and presbytery) is chiefly of Portland stone, with an admixture of flint in the aisle walls. The south transept is the same, but with a good deal of Ham stone introduced. The later portions of the building are almost entirely of Ham stone—the transept, crossing (w. piers), and tower; and also the additions and alterations—such as parapets and pinnacles—made to the choir and presbytery. The interior is very striking in this respect, the eastern piers of the central tower being of Portland, while the western piers are of Ham, stone. Ham stone occurs certainly in the jambs of the clear-story and aisle windows, but it may possibly have been later work inserted.

NEWGATE PRISON.

As this remarkable building will shortly, and of necessity, disappear—for it could be used for no purpose but a prison, in which respect its interior arrangements are out of date—we have thought a good record of its appearance would be of permanent value. Mr. Curtis Green has produced a fine drawing of it, which we are sure our readers will be glad to have.

We gave measured drawings of the building, by Mr. G. J. Lacy, and some account of its history, in our issue of December 21, 1895. Mr. Green wishes us to add that he has been much assisted by Mr. Lacy's drawings in making the present perspective view.

VIEWS OF OLD WESTMINSTER.

THESE views are given in connexion with the article on "Old and New Westminster," published in this issue, and are nearly all referred to there.

The view of "Rural Millbank," as it appeared at the beginning of last century, is from a pretty water-colour drawing in the Crace collection. That of Millbank Penitentiary is from an engraving made probably shortly after the Penitentiary was built. The sketch of the buttress of Westminster Hall, as it appeared when Soane's Law Courts were cleared away, was made at the time by Mr. W. E. Drummond - Milliken. The other illustrations are all from lithographs or engravings in the Crace collection. They show New Palace Yard as it existed early in the century, with the coach of the period also; Labelye's old Westminster Bridge, removed in 1861; the doorway of Old Bridewell, as it stood as a relic in the middle of a garden, subsequent to the demolition of the prison; the exterior of the "Painted Chamber" where once the House of Lords met; the Houses of Lords and Commons as they appeared before the fortunate fire which cleared the way for the present noble structure; and the cloister court east of Westminster Hall, as it appeared after the fire. On the right is seen the buttress which Barry cut away in carrying out the Houses of Parliament.

THE PORTAL OF THE NEW CENTURY.

IT occurred to me that the entry on the new century might be architecturally symbolised by the idea of a vast hall of Cyclopean dimensions, beyond which the bridge into the future stretches towards the sunrise.

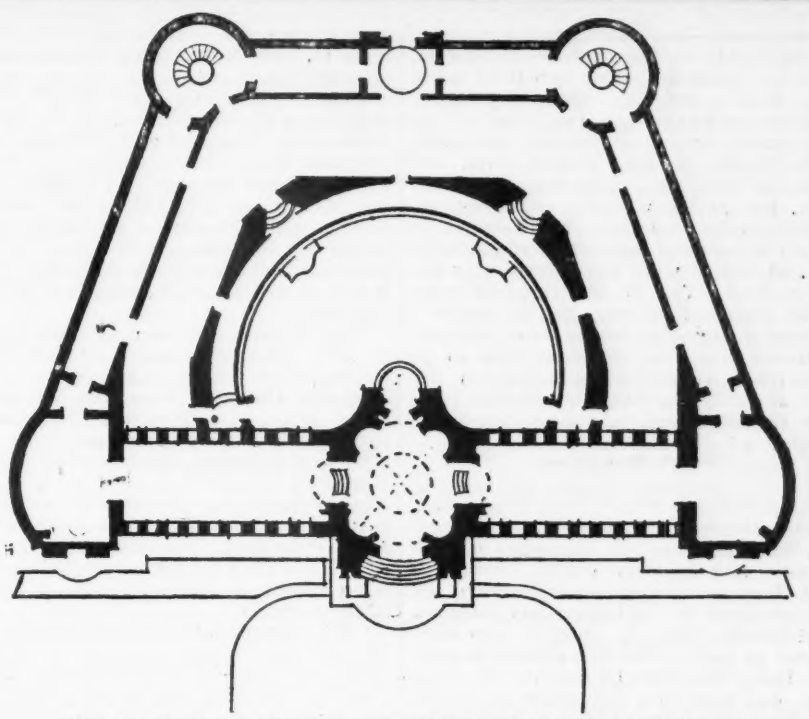
The sub-title, "An Extempore Fantasy," is a mere expression of fact, inasmuch as it was built up extempore on the paper without even a preliminary sketch—an "essay in the intervals of business," and must be taken as such.

H. H. S.

THE SMALLER ART PALACE ON THE CHAMPS ELYSEES, PARIS.

WE give two illustrations, from photographs specially taken for the *Builder*, of M. Girault's beautiful building on the Champs Elysées, known as the "Petit Palais," so called in contrast with the still larger palace opposite, though in reality it is anything but a "small" building.

The one view shows the principal façade facing the Avenue to the bridge; the other shows the interior of the semicircular court,



The Smaller Art Palace on the Champs-Elysées, Paris. Plan.

perhaps the most charming portion of the architecture. The plan appended illustrates the arrangement which is the basis of the whole conception; the semicircular internal court with the double suite of galleries on a semi-hexagon plan outside it, the sides of which form tangents to the circle.

The building was described at length, in regard to its ornamental details and sculpture, in an article on "The Two Art Palaces of the Paris Exhibition," in our issue of June 16, 1900.

THE HEART OF ROUEN.

THIS drawing, which was sketched upon the spot a few months back, is taken from a window of a house upon the quay. It represents the most ancient part of that remarkably interesting city as it is at present (factory chimneys, iron spire, and all). The foreground shows the various old streets which form a kind of network of ancient houses and buildings between the Halles and the Rue Grand-pont. The houses are interesting examples of timber construction coated all over with slate very ornamentally treated. Viollet le Duc, in his "Dictionnaire," gives examples, under the heading "Ardoise," of this form of slate-casing, so common in this part of Rouen. It is somewhat curious that, although these houses have highly-ornamental gables, towers, and richly-carved corbels, no decoration of any kind is to be found on the chimneys, which are perfectly plain. The streets, &c., shown in this view are the Rue du Bac, the Rue des Halles, Rue de la Savonnerie, Rue de l'Epicerie, and the Rue Potard. Part of the buildings of the Halles are shown to the extreme left, but the curious Renaissance building called "Haute Vieille Tour" is not visible from this point of view. Andrea Cook, in his charming "Story of Rouen," points out a great peculiarity of this part of the city. The streets all run *up* to the quay and not down to it, and as the Cathedral is on a hill, the whole district forms a valley, and it seems as if it must formerly have been covered with water and the river banked up at some time; or was there a *second* island between the original shore and the Ile Lacroix? This sinking of the land is distinctly visible in our view, and throws into prominence the Cathedral and St. Maclou, whereas St. Ouen, which is the loftiest church of the three, being below the brow of the hill and on the opposite bank of the Robec, is less conspicuous. That eccentric little river almost turns a right angle under the Rue d'Amiens, and flows at the back of the Rue Damiette, after which it disappears. All this part of the city, when seen from a height, looks a bewildering maze of lanes and houses, which, together with the three magnificent churches, form a picturesque group such as is scarcely to be equalled anywhere else in Europe. Not only is the general view so fine, but when we examine it in detail we shall find such streets and houses as delighted Prout and Coney. The Rue de l'Epicerie, the Rue du Bac, the Rue de la Savonnerie, the Rue Damiette, and "Eau de Robec" are specially rich in old carved and slate-fronted houses. The tall slate-covered towers are very singular features in the Rouen houses. One does not notice them so much in passing along the streets, because they are generally in the courts at the back of the houses.

Alas! what is to become of all this maze of picturesque but dangerous and insanitary dwellings—this "dream for the artist," but nightmare to the unfortunate Town Council of Rouen? The great danger is fire, the less "demolition!"

When, however, that demolition takes place we do trust that it will not be carried out with that total disregard of everything ancient which characterised the construction of the Rue de la République and some other new thoroughfares in Rouen; and one is glad to notice that in the rebuilding of the Hotel of the Crescent, "Cour des Comptes" (an eighteenth-century structure), the old sixteenth-century doorway and beautiful Early Renaissance cloister have been saved, which gives one a hope of better things for the future.

The last of the old timber houses touching the Cathedral buildings is coming down; it is in St. Romain-street, and is interesting. We cannot, however, blame the Town Council for removing these houses attached to the churches, as the danger from fire and the insanitary conditions created by such buildings are too serious to be neglected, even for the cause of picturesqueness.

H. W. BREWER.

ARCHITECTURAL SOCIETIES.

THE ARCHITECTURAL ASSOCIATION OF IRELAND. — On Tuesday, the 18th ult., Mr. Charles J. MacCarthy, City Architect of Dublin, delivered a lecture entitled, "Some Intentional Irregularities of Italian Mediæval Architecture." The lecture dealt in detail with a number of instances of structural irregularities in Italian mediæval churches. These irregularities were apparently first noted in modern times by Mr. Goodyear, an American architect, who attached so much importance to his inquiry that, assisted by a surveyor and a photographer, he entered on a regular course of inquiry, the results of which he duly published. These came under the notice of Mr. MacCarthy, who took the opportunity of inquiring personally into the matter by a couple of visits to Italy, with the result that he has become convinced of the correctness of Mr. Goodyear's conclusions—namely, that these so-called irregularities are absolutely the result of deliberate intention, and not due to constructive unskilfulness. The irregularities to which Mr. MacCarthy called attention take such forms as the narrowing of the nave

towards the east—the inclination diagonally of the central axis of the church—in some instances to so great an extent as 8 ft. by actual measurement; and in other instances a perspective reduction of the lines of the nave arcade by a continuous narrowing of the spans of the several bays, and curious to note such reduction is seldom regular, but on the contrary extremely unsystematic to all appearance. For instance, we get three or four bays regularly diminishing in span, and then a wide bay—wider than any other, perhaps. This is often held to prove that the irregularities were not the result of deliberate forethought, but rather of accident. Mr. MacCarthy strove to show this to be further proof of artistic feeling, which disdained a purely mechanical reduction. The lecture was illustrated by a large number of diagrams.

DIARIES, &c., FOR 1901.

MESSRS. HUDSON & KEARNS (83, Southwark-street, S.E.) have sent us specimens of their architects' and builders' diaries, and their special diary blotting-pads, all of which we can recommend for usefulness and neatness. The architect's diary is issued in two sizes, numbers 12 and 13, the only difference apparently being that No. 12 has, in the diary proper, one page to a day, while No. 13 has two. They contain, in addition to information usually to be found in a diary, some cases of interest to the profession decided in the Courts of Justice during the past legal year; a list of Metropolitan District Surveyors and districts, with official and private addresses; regulations and rules as to applications to the London County Council under the London Building Act; a list of some architectural, surveying, and engineering institutions, with their presidents and officers, &c. The builder's diary, No. 11, has two days to a page, and contains a series of useful tables for builders, including a wages table, a form of ready reckoner for carrying out estimates, checking invoices, &c., and tables for the valuation of property, leases, life interests, insurances, &c. Messrs. Hudson & Kearn's diaries need no recommendation to those of our readers who have used them; they are admirably arranged and printed, full of useful information, and leave little or nothing to be desired. As to the blotting pads, No. 8A and the banker's pad are specially good specimens.

"Sprague's Pocket-Diary and Architects' and Surveyors' Memorandum" for 1901 is the thirty-second annual edition, by Messrs. Sprague & Co., Limited, 4 and 5, East Harding-street, Fetter-lane, E.C., of a useful and well-arranged little diary. The information for architects, surveyors, and others is put in a very concise way.

"The Architects' and Surveyors' Diary for 1901," published by Messrs. Waterlow Brothers & Layton, Limited (24, Birchin-lane, E.C.), contains much information useful to architects, surveyors, and others. Besides the usual features of a diary, the work contains lists of members of the R.I.B.A., the Surveyors' Institution, Institution of Civil Engineers, and other bodies, a digest of the principal acts relating to buildings, &c.; conditions and contract on taking building land; general conditions for building contracts; professional practice and charges of architects, &c. The work is neatly bound and got up.

The first year's issue of "*Knowledge* Diary and Scientific Handbook" (High Holborn) comes appropriately at the commencement of the new century, and gives promises of many future issues. The scope of the work is mainly astronomical, but its usefulness is not confined entirely to science, as some of its features will be useful for workers in other branches of work. The diary includes:—An Historic Summary of the Advance of Science in the Nineteenth Century; Astronomical Notes and Tables; Twelve Star Maps showing the Night Sky for every Month in the Year; Tables of Tides and Tidal Constants; Original Descriptive Articles on the Tides and Terrestrial Magnetism; A Calendar of Notable Events; Photograph and Detailed Description of the Gigantic Telescope exhibited at the Paris Exhibition; an essay on the Uses of Knowledge; The Constituents of the Sun; The Hundred Brightest Stars, with a Table of Principal Observatories of the World; List of Principal Refractors of the World; and Monthly Astronomical Ephemeris. The diary portion gives a page to a day. The work is very neatly got up, and will certainly prove a useful book of reference as well as a well-arranged diary.

"The City Diary for 1901" (W. H. & L. Collingridge, 148, Aldersgate-street) is the thirty-eighth year of issue of a most useful work of reference to everyone interested in the local government of the City. A complete list of members of the Corporation, with addresses, is given, and particulars of the City Companies are set out, and other information useful to City people and others is given. The diary portion is well arranged, and is interleaved with blotting-paper.

"The Railway Diary and Officials' Directory for 1901" (McCorquodale & Co., Limited, Cardington-street, Euston-square) and a copy of the "Railway Almanac" have been sent us—both useful issues. The diary is full of information and statistics relating to railways.

"The Mechanical World Pocket Diary and Year Book for 1901" (Emmott & Co., Limited, New Bridge-street, Manchester) is the fourteenth year of publication of a cheap, neat, and handy little diary. The diary portion is somewhat limited, the greater part of the work being taken up with useful engineering notes, rules, tables, and data.

"The Gloucester Diary and Directors' Calculator for 1901" is the sixth year of issue of a work published by the Gloucester Railway Carriage and Waggon Company, Limited. It contains a list of stations and junctions attended by the company's waggon repairers, with names and addresses of the repairers.

Messrs. Bemrose & Sons, Limited, 23, Old Bailey, E.C., have sent us several of their daily calendars — Shakesperian and Proverbial — which are excellently got up and suitable for use in the office or home. The same firm also send us their monthly diary—the diary consisting of twelve parts, suitable for carrying in the waistcoat-pocket.

Messrs. Jonas Smith & Co., timber merchants, Belvedere-road, Lambeth, S.E., also send us their daily calendar, the date on which is very clearly printed in red.

TECHNICAL EDUCATION ON THE CONTINENT.

MR. JAMES BAKER, F.R.G.S., has prepared for the information of the Board of Education a record of the impressions which he formed in the course of a journey that he undertook through East Prussia, part of Poland, Galicia, Silesia, and Bohemia, with the special object of observing, from the point of view of one generally interested in the development of British industry and commerce, the progress of technical and commercial education in those countries. Describing first the Berlin Royal Technical College, Mr. Baker observes that the very building induces respect for industry and mechanics. It has a great and stately façade, and a bold flight of steps leading to its principal entrance, the great building stretching away 125 yards on either side of this entrance, the entire structure being 250 yards long and just 100 yards deep. There are working in this building over 3,400 students and Hospitanten, 140 professors, and 260 assistants. The subjects taught here are architecture and building engineering—that is divided into Tief and Hoch Bau, the Tiefbau dealing with what one may term ground engineering (railways, bridges, drainage, &c.), and the Hochbau dealing with above-ground building, such as houses, towers, &c.—machine engineering (including electro-technical work), shipbuilding and marine engineering, chemistry, metallurgy, and general science (including natural philosophy and mathematics). The fees are arranged according to the lectures attended and practical work undertaken, students paying for lectures 4 marks (*i.e.*, 4s.), and for an hour's practical work 3 marks, whilst the free-lance students called Hospitanten pay 5 marks for lectures and 4 marks for practice. The classes from which the students are drawn are very varied; the poor lad who has gained a scholarship, or stipendium, as it is called, may be working by the side of an admiral who agrees with the statement that one is never too old to learn. Of these scholarships for the assistance of poor or clever students the school possesses a very large number, nearly a hundred in all; and many Prussian scholars who are poor but able are freed from paying the school fees, and a goodly number of the scholarships also carry with them this remission of the fees. It was interesting, Mr. Baker remarks, in passing amidst the orderly maze of class and lecture room, workshop and laboratory, and, above all, through the model or museum rooms, to note the extreme order that prevailed in all departments. In the great hall the frescoes are illustrative of the building and engineering arts, the two at either end being powerful and realistic studies by Ernst Hildebrandt: one a painting of the Greek builders at work on the Acropolis, the other the scene of the building of a modern iron bridge; the other frescoes are of Rome, Philæ, &c. The next largest hall is devoted to the reading-room, and this adjoins the great library, wherein are 75,000 volumes, from the sets of folios of an earlier date upon artistic or scientific subjects to the Transactions of American scientific societies of to-day. In the reading-room are foreign papers in all tongues, and thus the student is in contact with the art and science of the world. There are twenty different museums in the school. In the Building Museum are examples of all stones, with photos of the quarries from whence they are obtained, and of all possible building material; and in the Architectural Museum are models of all parts of buildings and of the famous buildings of the world. In PRUSSIAN POLAND Mr. Baker visited the, originally, Royal Polish City of Posen, and made a close study of the new technical schools which he found pleasantly situated on the outskirts of the interesting town. The pupils enter at sixteen; there are four classes, and each class lasts for half a year with twenty lessons, but as the pupil is on practical work during half the year he is twenty when he has finished the course. The fees are 80 marks (4*l.*) for the half-year and 20 marks (1*l.*) for materials, pupils providing themselves with instruments, T-squares, and water-colours. Lodgings are arranged for the pupils at a fixed rate for board and lodging of 40 to 60 marks a month. A certain number of poor students are excused a part, or even all the fees; but a proof of need, of intense diligence and capacity from former schools, such as the Volksschulen, must accompany any application for such exemption. At the end of each half-year the pupil receives a certificate of the result of his work, and on his passing out of the first or highest class an examination is held, and those who pass receive a diploma from the Royal Examination Committee, which is accepted by the master builders and architects as a proof of the knowledge their code demands; it also suffices for certain Government situations in the building department and in the Tiefbau department, *i.e.*, positions on the canals, railways, roads, &c. The programme of work is, shortly, as follows:—For the fourth, or lowest class, German language two hours a week, especial attention being given to building and business work and the important points in connexion with post, telegraph, telephone, and railways. Arithmetic and algebra have respectively two and four hours per week; mensuration of plane figures, four hours; natural philosophy, two hours; practical geometry, four hours; building construction, introducing every type of separate portions of buildings, and their construction in stone and wood, sixteen hours per week; to the elements of form, proportion, &c., four hours; to freehand drawing, four hours. The third-class gives three hours to algebra, four to trigonometry and stereometry, two to natural philosophy, three to the study of building material, four to practical geometry, four to statics, and twelve to building construction in stone and wood. These latter twelve hours are sub-divided thus—Form: Joints and braces in stone, wood, and iron, and study of the columns of the Renaissance, simple façades, four hours; freehand drawing, simple ornament, parts of buildings from models, and practice in sketching—four hours; building knowledge or architecture, planning simple buildings and studying the principal laws affecting buildings—four hours. In the second-class two hours per week are given to natural philosophy, especially the uses of magnetism and electricity in connexion with the building art, and four hours to practical geometry. Then comes Festigkeitslehre, or the strength of form and materials, to which five hours are given; whilst to practical work—building construction that now advances to stairways, foundations and their difficulties (such as piling, dams, &c.), pillars, joists, and the interior work (such as the carpentry and locksmith's work, doors, windows, and wall decorations)—to this, as always, the most time is given, viz., twelve hours. Then come architectural plans and designs for simple town houses and the essentials of farm building—five hours. In this second class also appears for the first time the Entwerfen, or designing, of which so much is made in all these schools in all trades. At the start plans are to be drawn of simple buildings; houses for artisans, or for the minor officials, small houses detached or connected with others, village schoolhouses, or the dwellings of a village pastor, the principal stress being laid on the details in working out the construction, and upon the most suitable forms taken in connexion with the class of materials used. The pupil also has to sketch out working plans of the details of the sketch. Eight hours a week are given to this, and two hours to valuations, quantities, costs, &c. Then come studies in form, sketches, and designs of balconies, oriels, &c., gables in various materials—four hours; measuring and levelling—two hours; whilst modelling is introduced according to the discretion of the director. In this class is likewise introduced the ambulance or first-aid instruction, and twelve hours during the half year are given to this very helpful knowledge. In the first or highest class some time is given to a repetition of the foregoing work, the work being carried forward to more elaborate examples. Most time, *i.e.*, fourteen hours a week, is given to designs and plans of all types of building save the highest, such as churches—these do not come within the

scheme of this grade of school. Cost and measurement and quantities are exactly dealt with, and two hours a week are given to the laws and police regulations touching buildings, and one hour a week to special book-keeping suitable to a builder's work. The course for the Tiefbau—or, as one may term it, the ground-building course—for the first two (fourth and third) classes is the same as for the Hochbau course, and then it develops into the special subjects required by the pupils for their special work. Special time is given in the second class to durability and resistance power of the various materials and various forms of structure, also such subjects as subterranean buildings, roads, wear and tear, water-dams, bridges, railways, general drainage and irrigation works. Likewise in the first class hydraulics are taught with special attention to the pressure of water in drains, canals, and rivers; and eight hours are given to what is termed Wasserbau (waterworks) dealing with canals, sluices, dams, the supply of water to farms, drainage of the same, &c. The thoroughness of this plan, Mr. Baker suggests, will be at once seen, the only doubt that will occur to the mind being: Can all this be really learnt in the four half-years? but on going over the work actually in progress or accomplished in the school, he concluded that the work was being thoroughly learnt and understood. In the first class, for instance, were men of from eighteen to twenty years of age working upon roof construction, with details of wind and snow pressure and weight bearings. Others had a plan given them of a certain type of house, and then the pupil has to work out all details and create a design. The ground plan, floors, rooms, façade, doors, and windows, all have to be worked out to scale, and an effective design given for the whole building. In each class, according to the grade, Mr. Baker found this thorough type of work was going on—sometimes drawing from models, at others creating designs.

TRADE CATALOGUES.

MR. H. BURMAN sends us his No. 5 catalogue of wooden moulding sections, including also turned balusters and newels. We do not care for the newels, except No. 21, which is the best (well-designed newels are among the greatest rarities); but some of the balusters are very good and rather new in form. The sections of mouldings, which are numerous and well varied, are given full size.

We have received from the Welsbach Incandescent Gas Light Company a catalogue of burners and fittings for the illumination of streets and public places by incandescent gas light. The catalogue is profusely illustrated, and the so-called "shadowless" form of lantern and column is a marked improvement on some of the older forms of lantern. The great reductions which have been made in the prices of the commonest forms of burners and mantles must tend to increase greatly the popularity of the Welsbach system of lighting if the reduction in prices has not been effected by a reduction in the quality of the materials supplied.

Messrs. Lockerbie & Wilkinson (Birmingham) send us an illustrated pamphlet of their "autolite" portable acetylene industrial lamp. This lamp ought to prove useful for many industrial applications. It gives a brilliant light of 50 c.-p. for eight hours with a charge of one pound of carbide. It can be extinguished and relit when required, and contains no mechanism that could get out of order. The makers claim that it is cheaper, simpler, safer, and cleaner than any oil lamp.

Messrs. Redpath, Brown, & Co. (Edinburgh), send us their new section book of steel girders, stanchions, and columns, calculated and arranged by Mr. Alexander Drew, M.I.Mech.E. Part I., referring to girders of different kinds, contains an introduction wherein the physical properties of the material are stated, together with formulas, by the aid of which safe loads may be calculated. In the tables of safe distributed loads for various types of girders, clear indication is given of the loads which are likely to produce greater deflection than is permissible in ordinary buildings. Some practical notes and sketch suggestions form the conclusion of the first section. Part II. treats of columns in a generally similar manner, and taken as a whole the book may justly be regarded as a most useful addition to mercantile literature.

We have received from Messrs. Merryweather & Sons their catalogue of the "Hatfield" pump, with illustrations showing its application to different requirements. The pump has three barrels arranged radially round a direct-driven shaft, and in principle resembles an inversion of the well-known "Brotherhood" engine.

Messrs. John Blake (Accrington), send us a catalogue of Blake's self-acting hydraulic rams, in which are wood cuts illustrating some of the many uses to which these rams are applicable.

We have received several illustrated circulars from the Consolidated Telpherage Company of New York describing rapid and economical methods of transporting materials by means of what is practically a miniature overhead electric railway. They prove that in many cases great economies can be effected by this means, and it seems particularly adapted for conveying agricultural produce from farms to the nearest markets at cheap rates. For work in quarries, mines, blast-furnaces, factories, &c., it might also be useful, and those interested in the transportation of materials would do well to consider the telpherage system.

The "Warrington" Bond-iron Syndicate send an illustration and description of their wall-ties, which are formed from a length of iron wire shaped into a double loop and the ends twisted together in the centre; for cavity ties there is a long twist bridging the cavity, the loops going into the brickwork. In the case of cavity-walls this tie has the advantage that it presents only the smallest possible surface in the cavity. The makers state that it obviates the necessity of cutting or clipping the bricks, as "it can be bent to fit into the courses," but that somewhat injures its quality as a tie. It has, however, a great deal to recommend it. The ties are coated with a protective against oxidation.

Messrs. Chubb & Son send us a pamphlet describing the almost sensational test of one of their safe-doors by the firing of a 100 lb. "armour-piercing" steel shell at it at a range of 50 yards. The door was practically uninjured (as shown by a photograph), and the shell smashed up. The material of the door was the latest form of hardened "Harveyed" steel. There is also an illustration of the treasury-door made from this artillery-tested plate. We take the following from the pamphlet:—

"The door has no handles, screw holes, key, nor spindle holes; nothing can be taken off or removed from it, for there is nothing on it to remove; and as there are no holes nor the beginnings of any, nitroglycerine or dynamite cannot be introduced. In this respect, viz., being absolutely solid, it is believed to be unique as a door. It presents a plain front to the worst and best of burglars, giving them no point for attack. Steel that has withstood the impact of a heavy steel projectile from a 6-in. gun at point blank range cannot be touched by punches, drills, or chisels. . . .

The first step towards opening the door is to find a tiny keyhole in the side of the frame surrounding the door. Into this is introduced a very small key, so small that it can be mounted in a finger-ring. This opens a little cupboard in which is discovered the dial of a keyless combination lock and the squared end of a rod or spindle, upon which a loose crank handle can be fitted. By turning this rod it is possible eventually to undo the main bolts of the door, but at first the rod goes round and round without doing anything, turning with equal freedom in both directions: it is, in fact, out of gear, and it can only be put into gear—thus establishing its connection with the main bolts of the door—after the keyless combination lock has been worked. This lock is set to open upon predetermined numbers selected between 0 and 100 by the owner, and known only to him. Even if the knowledge of the correct numbers by which to open the lock leaks out, it would be of no practical value to a burglar, as the safety of the door does not rest upon this one little lock. When the spindle connexion to the bolts has been established by means of the internal clutch which the keyless lock controls, the spindle is free no longer: it is geared up to the boltwork.

The fastening of the door depends primarily upon twenty massive bolts, and these in turn are governed by a quadruple timelock. When this 'timer' is on guard the bolts cannot be moved inwards—that is to say, the door cannot be opened. But when at the predetermined hour the 'timer' has gone off guard, then, by means of the crank handle on the spindle end, the bolts can be withdrawn from the bolt-holes.

There is no handle by which to pull the door open, but in the floor outside will be seen the top of a small crank with a socket or hole into which a lever is put and pulled over. A simple but secure arrangement of links and levers from the crank brings pressure to bear in an outward direction upon the bottom of the door, and thus it is pushed open from the inside."

This door certainly seems to have attained the perfection of security as a safe-door.

Mr. T. Potterton (Balham) sends us illustrations of his patent zig-zag range boiler for warming houses in connexion with domestic supply. This is made in two E sections, which tooth into each other, leaving sufficient space for fire-way between. It is obvious that such a boiler is very economical of fuel in proportion to the work done. The same sheet shows an illustration of Potterton's indicating safety valve for boilers. The spindles of the valve are made of strong brass tube instead of a solid rod, so arranged that water can be drawn through it from the seating of the valve. If this can be done it proves that the valve is free from incrustation, otherwise the hole at the bottom of the spindle would be stopped and no water could be drawn. Both spring and dead-weight valves are shown; but the latter are far preferable; a spring alters with use, a weight does not.

Messrs. Shanks & Co. (Barrhead) send an illustration of a bath with Pirie's patent swivel tap for drawing-off water. This is a convenient arrangement by which the tap nearest the outside of the bath is made with a turning bib or nozzle, so as to discharge either into the bath or into a pail or other vessel placed outside the bath. The arrangement is patented by an architect, Mr. Pirie, of Aberdeen.

Messrs. Waygood & Co., Limited, send us their newly-arranged catalogue of lifts and hoisting machinery. A noteworthy feature of this book is that exact dimensions and other useful figures are given relative to the appliances described.

BOOKS RECEIVED.

EGYPT EXPLORATION FUND: ARCHÆOLOGICAL REPORT, 1899-1900. Edited by F. Ll. Griffith, M.A. (Kegan Paul, Trench, & Co.)

THE APARTMENTS OF THE HOUSE. By Joseph Crouch and Edmund Butler, architects. (The Unicorn Press.)

LONDON COUNTY COUNCIL: THE HOUSING QUESTION IN LONDON. Report Prepared by the Clerk to the L.C.C. (P. S. King & Son.)

Correspondence.

To the Editor of THE BUILDER.

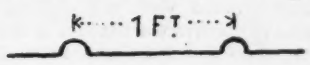
ROOFS OF FARM BUILDINGS.

SIR,—With reference to Mr. Walmisley's paper read at the Surveyors' Institution, and also to Mr. Mann's communication in your issue of December 15, we are constrained to admit, although we are large manufacturers of corrugated iron, that as a roof covering it cannot compare in appearance with thatch or with tiling.

Its durability, however, in the pure atmosphere of the country, is undoubted; and while farmers and landowners are bound to study the utmost economy, we suppose corrugated iron will still form a not unimportant feature as a covering material.

We did, however, some time ago, having in view its plain appearance with the ordinary corrugations, introduce a section which we named our "Canadian" pattern. It is quite as rigid as the ordinary corrugations and as easily fixed, is no more costly, and many of our friends have preferred this pattern to the common section. We enclose you a sketch of it. FREDK. BRABY & CO., LTD.

*** The roofing which our correspondents describe is made in this section



and would have somewhat the appearance of a lead roof with rolls. We quite agree that it is preferable in appearance to the ordinary corrugated iron.—ED.

THE BELFAST PRESBYTERIAN ASSEMBLY HALL COMPETITION.

IN reference to this competition, which has been the occasion of a great deal of discussion, the Council of the Royal Institute of British Architects has addressed the following communication to the Committee of the Presbyterian Assembly at Belfast:—

"9, Conduit-street, London, W.,
December 20, 1900.

Presbyterian Assembly Hall, Belfast.

DEAR SIR,—The Council of the Royal Institute have had their attention directed to the competition for the proposed new Presbyterian Assembly Hall, Belfast, and have carefully considered the whole question. In view of the unsatisfactory termination of this competition, and especially in view of the appointment as architect for this building of the firm responsible for the original objectionable conditions, the Council are of opinion that the only proper course to have been adopted was either to have appointed Mr. Rupert Savage as architect in conjunction with a consulting archi-

tect, as suggested by himself, or to have inaugurated a new competition with conditions drawn up by an experienced assessor.

My Council hope that the Assembly's Committee may yet see their way to adopt one of these courses.—Yours faithfully, W. J. LOCKE, Secretary."

The Student's Column.

SANITARY FITTINGS AND PLUMBING.

I.—INTRODUCTORY.

SO many books have been written on the sanitation of buildings, that the student may be inclined to think that there is no necessity for a series of articles on sanitary fittings and plumbing. This view might, perhaps, be correct if sanitation were an unprogressive science, but this is not the case. During the last quarter of a century sanitary science has progressed by leaps and bounds, and it is still progressing. The books of twenty years ago are now practically useless, and probably twenty years hence the books of to-day will also have been relegated to the limbo of forgotten lore, or will have been edited and revised till they are scarcely recognisable. Every year our knowledge becomes more exact and more complete, and every year new fittings are invented and old fittings improved, so that all architects must be students so long as they remain in practice, or must be content to be dubbed "old fogeys" and to be pointed at as being behind the times.

The wonderful increase in our knowledge of the causation of many diseases is one of the most marked features of recent years, and although very much indeed has yet to be learnt, sufficient is known to admit of practical application with beneficial results. The germ theory of disease is no longer regarded merely as a plausible hypothesis, but is accepted as a fact which is becoming every day more significant. "Find the microbe" is the key to as many enigmas as "*Cherchez la femme.*"

The important effect which this one fact must have on practical sanitation has scarcely yet been sufficiently recognised. The aim of sanitary science must be to remove from buildings and their appurtenances all conditions which can contribute to the growth and distribution of pathogenic organisms, and, as far as possible, to provide those conditions under which such organisms cannot exist. This is a difficult problem, and cannot be solved until the life-history of every disease-producing organism has been thoroughly studied. Something in this direction has already been accomplished, but the knowledge which has been gained shows clearly that the solution of the problem will not be easy. Dr. Sidney Martin's experiments with the typhoid bacillus show that this soon dies in "virgin" soils, whether these are sandy or peaty, but that it rapidly multiplies in moist sterilised samples of soils from gardens and other cultivated places, and retains its viability and vegetative properties for months and perhaps years. Moist sterilised soil which had been impregnated with the typhoid bacillus was found to contain the bacillus at the end of 456 days. The soil was then naturally dried for forty-nine days till it "could be readily powdered into a fine dust;" the bacillus was still there. Other experiments showed that the bacillus spread through the soil in different directions.

Experiments with sterilised soils are, however, of little practical use. It is more important to know how long the typhoid bacillus can survive in soils containing other bacteria. No definite statement on this point can yet be made, but there is reason to believe that, while in many cases the typhoid bacillus may be overcome by the other bacteria in the general struggle for existence, in some cases it will live and retain its dangerous properties for months. In a recent report on "Enteric Fever in the City of Chichester," Dr. Theodore Thomson and Col. J. T. Marsh, R.E., came to the conclusion that the most probable cause of the repeated recurrence of enteric (typhoid) fever in this city is the foul condition of the soil, due to the "leaky cesspools and cesspit-privies, which, until some three years ago,* formed the sole methods of disposal of all its excrementitious matters."

The lessons to be learnt from these and other investigations are that some pathogenic organisms are not by any means so short-lived as is commonly supposed, that they may spread rapidly under suitable conditions, and that they may exist for a considerable time even in dust so dry as to be blown about by the wind. The degree of temperature at which most rapid growth occurs differs, but most bacteria develop at the temperatures which are ordinarily maintained in inhabited buildings, while some (among which the typhoid bacillus is unfortunately found) can, in the words of Dr. Newman, "withstand freezing for weeks."

Moisture almost invariably favours the growth of bacteria, but some species can exist for a lengthened period in a dry medium. Sunlight, on the other hand, retards the growth of bacteria, and is often positively fatal to them, particularly in the presence of oxygen.

The practical application of the knowledge gained by medical experts is the problem which confronts the sanitarian, whether he be architect or engineer, and in attempting to solve this problem, the importance of sunlight and fresh air must not for a moment be forgotten. These are the natural germicidal agents which he must endeavour to utilise to the best advantage. It is also essential that rooms containing sanitary fittings should be so constructed and arranged that they can be kept scrupulously clean with the least possible trouble. Accumulations of dirt or dust in dark, unventilated rooms generally constitute suitable soils for the growth of bacteria.

But however satisfactory the rooms containing sanitary fittings may be, great danger will exist if the fittings themselves are not of a suitable character, and if the plumber's work in connexion with them is not properly executed. Untold harm has resulted from the fixing of water-closets and other fittings of faulty design by unskilled workmen under more or less ignorant supervisors. The harm has not always been confined to the occupants of the houses containing the fittings, but has often spread throughout the community. Many towns to-day are paying the penalty for previous misdeeds.

Even some of our health resorts have shown an almost criminal disregard of sanitary requirements. Two examples will suffice for our purpose. In his report (dated January 30, 1900) on "Epidemic Enteric Fever in the Borough of Falmouth" Dr. G. S. Buchanan writes :—"Excrement disposal is almost everywhere effected by water-closets. Most of these closets are provided with flushing-boxes or flush-tanks, but some 200 are without flushing apparatus. The latter 'hand-flushed' closets are apt to become exceedingly foul. . . . . At the date of my visit the occupants of a few of the larger private dwellings in Falmouth were having their house-drains exposed for examination. In each instance where I had an opportunity of seeing these house-drains they were seriously defective; thus, joints of pipe-drains were leaky . . . . soil-pipes were inside the house and unventilated, sink waste-pipes led directly to the house-drains. . . . ." In a later paragraph he says :—"Soil-pipes are habitually unventilated* . . . . Much of the recent plumber's work which I saw also seemed unsatisfactory."

In March, 1899, Dr. Buchanan, after a serious outbreak of diphtheria at Tunbridge Wells, wrote :—"House-drains are rarely trapped from the sewer, and frequently they are ventilated only by means of rain-water pipes which open just below the eaves. Often, I was informed, waste-pipes opening within the dwelling are connected directly with the house-drain. . . . . Within the smaller dwellings commonly the only drain is a sink-pipe, which discharges its contents outside the building over a bell-trap. These bell-traps are usually defective. . . . . In houses of better class are occasionally found water-closets provided with objectionable D-traps, and soil-pipes of water-closets often are unventilated. As a rule in smaller house property each dwelling has belonging to it a water-closet placed outside the building. A majority of these water-closets are without apparatus for flushing; being of the 'hopper' type, and getting merely an occasional 'flush' from a water-can, they often become filthy. In one row of houses I found closets of this sort built in the basement of the house, opening into the kitchen."

These instances serve also to show that, however much knowledge of sanitary fittings and plumbing there may be in the country, the practical application of this knowledge has been, and still is, far from adequate. Every architect, who has to carry out alterations of houses, meets many instances of glaring defects even in buildings which have been erected in recent years. These defects are often due to ignorance or carelessness, but in many cases the blame must rest on the owner of the houses, for having demanded cheapness (however nasty) instead of efficiency. The architect unfortunately has to deal with many clients of this nature, and is often thwarted in his endeavours to do good work, even though he points out that cheapness in first cost almost inevitably entails excessive expenditure in repairs and alterations, and perhaps in doctors' bills.

Statistics as to the incidence of disease in houses provided with water-closets and in houses with pail-closets or privies are somewhat misleading, but it is not going too far to say that water-closets appear to be in many cases even more dangerous than the conservancy systems. Thus, at Gainsborough, according to the report of Dr. Darra Mair, twenty-five of the houses invaded by fever during twenty months of 1897-8 were provided with privies, five houses invaded were provided with pail-closets, and sixteen with water-closets. As there were 2,455 houses with privies (either separately or in common), 305 with pail-closets, and 1,300 with water-closets, the incidence of the disease was as follows :—

In houses with privies.....	1 in	98
" " pail-closets...	1 "	61
" " water-closets	1 "	81

It is not surprising to learn that "in some of the latter houses gross sanitary defects had been discovered in connexion with the water-closets or the drains."

The following words by Dr. Farr, the eminent statistician, are worth careful consideration :—"Almost coincidently with the first appearance of epidemic cholera, and with the striking increase of diarrhœa in England, was the introduction into general use of the water-closet system, which had the advantage of carrying night-soil out of the houses, but the incidental and not necessary disadvantage of discharging it into the rivers from which the water-supply was drawn." In London the mortality per 1,000 from diarrhœa was ·215 in 1838, ·201 in 1839, and ·238 in 1840 and 1841, an average of ·223. In 1849 connexion of drains with sewers was compulsory, and the death-rate from diarrhœa became 1·705 in 1849, ·813 in 1850, 1·085 in 1851, and ·983 in 1852, an average of 1·146, or five times the death-rate from 1838 to 1841. The average for the decade 1871-80 was, according to Dr. Ogle, ·940 per 1,000, or very little better than the rate for 1849 to 1852, and more than four times the rate for 1838-41. The number of deaths from diarrhœa in London for the ten years from 1871 to 1880 was 33,168. If the death-rate of 1838-41 had been maintained during this period, the number of deaths would have been only 7,868. In other words, 25,300 lives appear to have been lost in London in 1871-80 from one class of disease alone, chiefly through mistaken "sanitation."

It follows from these premises that so-called sanitary fittings and plumbing are dangerous unless they are not only satisfactory in themselves, but are also connected with drains and sewers which are equally well designed and constructed. Everything must be so arranged that pollution of air, soil, and water-supply is reduced to the smallest possible amount. It is false economy to cut down the cost of sanitary work below a certain limit. Sanitary fittings ought always to be of good quality and properly fitted. If little money can be afforded, the number of the fittings must be reduced, as it is better to have one good water-closet than (say) two bad water-closets, or a bad water-closet and a bad slop-closet. Economy can also be effected by grouping the sanitary fittings together, and so reducing the length of the drains and the number of ventilating pipes, but this branch of the subject will be more fully discussed in the next article.

* This was written in 1899.

* In the next paragraph Dr. Buchanan modifies this statement by saying that "new soil-pipes have *in most instances* been provided with ventilating shafts." The italics are ours.

A MEMORIAL TO THE LATE SIR RICHARD TATE.—It is stated that Lady Tate, widow of the late Sir Richard Tate, Bart., has undertaken to defray the cost of erecting a new chancel at the Independent Church, Brixton, as a memorial to the donor of the National Gallery of British Art at Millbank. The church is being enlarged after the designs of Mr. P. Morley Horder.

OBITUARY.

DR. W. POLE, F.R.S.—On Sunday last Dr. William Pole, F.R.S., F.R.S.E., Hon.M.Inst.C.E., Mus. Doc., died at 9, Stanhope-place, Hyde Park, W., at the age of eighty-six. Although comparatively little known to the rising generation, the career of Dr. Pole is familiar to those who have left youth behind them as that of an accomplished and versatile genius, who was one of the ornaments of the century which has recently drawn to a close. Born on April 22, 1814, in Birmingham, he was articled to Mr. C. Clapper, an engineer in that city. On the expiration of his time he was concerned for three years in the construction of gasworks plant, and for four years in the warming and ventilation of buildings under the late Mr. Sylvester, who may be remembered as the inventor of the hot-air stove which bears his name. In the year 1840 he was elected an Associate of the Institution of Civil Engineers, for at that time the class of Associate Members did not exist, and four years later he received from the Hon. East India Company the appointment of Professor of Civil Engineering in Elphinstone College, Bombay. Returning to England in 1847, he was chiefly occupied in the mechanical branch of his profession, holding responsible positions as resident engineer under Mr. Simpson and Mr. Randall, and taking an active part in the provision of plant and stock for Indian Railway undertakings. On February 12, 1856, he was proposed by the late Mr. John S. Rastrick, and elected a member of the Institution of Civil Engineers; and in 1859 he became Professor of Civil Engineering at University College, London—a position he held until the year 1867. During the same period he also acted as Lecturer at the Royal Engineers Establishment, Chatham. These appointments no doubt served as stepping stones to still more important scientific work on behalf of her Majesty's Government, for which Dr. Pole was eminently qualified both by his practical experience and by his intellectual attainments. From 1861 to 1864 he was a member of the Committee on Armour Plates; from 1863 to 1865 he served as one of the Committee on the comparative merits of Whitworth and Armstrong guns. He next acted as secretary to different Government Commissions; from 1865-1867 to the Royal Commission on railways; from 1867-1869 to the Royal Commission on Water Supply; from 1882-1884 to the Royal Commission on the Pollution of the Thames; and in 1885 to a Committee on the South Kensington Museums. In connexion with the work following the recommendations of the Water Commission, he took an active part, especially with regard to the constant service system. In 1870 he was appointed by the Board of Trade one of the Gas Referees for the Metropolis, and this position was held until the year 1899. At the request of the Institution of Civil Engineers, Dr. Pole undertook the work of arranging a mass of information gathered with relation to the systems of engineering education adopted by different countries. The result was an octavo volume, published in 1870, and bearing the title, "The Status of Civil Engineers in the United Kingdom and Foreign Countries." He was elected a member of the Council of the Institution in 1871, and in the same year his services were engaged by the Japanese Government, for which he acted as consulting engineer to the Imperial railway system, receiving on his retirement in 1883 the Imperial Order of the Rising Sun. He was elected honorary secretary to the Institution of Civil Engineers in 1885, as the successor to Mr. Charles Manby, F.G.S., and on giving up this office in 1896 he was proposed by Mr. (now Sir) John Wolfe Barry, and elected an honorary member of the Institution. Besides contributing various papers to the Institution of Civil Engineers, Dr. Pole was the author of many works on scientific subjects. Amongst others may be mentioned, "A Treatise on the Cornish Pumping Engine," 1844; "Iron as a Material of Construction," 1872; "The Life of Sir William Fairburn," 1877; "The Life of Sir William Siemens," 1888. He was elected a Fellow of the Royal Society in June, 1861, and held office as Vice-President in 1876 and 1889. As may be supposed from his doctor's degree, he was a learned and accomplished musician and musical critic, though he did not produce much as a musical composer. Dr. Pole was also an authority on whist, of world-wide acceptation; indeed, we have met people who knew him only as a celebrated whist player, without being aware of his other and more serious accomplishments. Dr. Pole had also a special knowledge of precious stones, and contributed a learned article on the subject to a well-known review some time since. That one man should have been acquainted with so many different subjects, not superficially but thoroughly and scientifically, shows the possession of mental powers of a very unusual order.

MR. H. C. BOYES.—We regret to announce the death on December 26, at Fir Cottage, Weybridge, in his fifty-fifth year, of Mr. Henry Cowell Boyes, of No. 6, Grocers' Hall-court, and Ormond House, Great Trinity-lane, Queen Victoria-street, E.C. Mr. Boyes was elected an Associate of the Royal Institute of British Architects in 1874, and a Fellow in 1882. He was a past-President of the Architectural Association, of which he had been elected a member in 1865, and in 1888 was elected a Fellow of the Surveyors' Institution. He took a warm interest in all matters relating to the auxiliary forces of the Crown, and as Lieutenant-Colonel of the London Rifle Brigade was recipient of the Volunteer Decoration medal. Mr. Boyes was architect and surveyor to the Grocers' Company. In that capacity he superintended the reconstruction (by Messrs. Cubitt & Co.) and decoration of that company's hall, of which we published a view of the interior on July 15, 1893, together with new reception-rooms and some other apartments on the garden ground. The hall, which now measures 96 ft. by 42 ft., had been rebuilt in 1798-1802 by Thomas Leverton, and was altered in 1828 by Joseph Gwilt, who built the front towards Princes-street, and rebuilt the clerk's official residence. Mr. Boyes also carried out some extensive alterations and improvements of the buildings of the company's grammar school at Oundle, Northamptonshire, founded in 1556. Of other architectural works by him which have been illustrated in our columns we may mention the house, Ridgemead, at Englefield Green, near Egham, for Mr. A. de M. Mocatta (April 10, 1886*); premises for Messrs. Seeley & Co. in Essex-street, Strand, W.C. (May 16, 1885); and, in or about 1895, the rebuilding of No. 49, Chancery-lane, W.C. (December 30, 1899). Mr. Boyes also made the plans and designs for the new buildings erected in 1891-2, at a total cost of upwards of 25,000*l.*, by Messrs. Cubitt & Co. upon the site of Dimsdale, Fowler, & Co.'s former premises, No. 50, Cornhill for the banking firm of Messrs. Prescott, Dimsdale, Tugwell, Cave, & Co., and, in 1892, the premises in Great Trinity-lane, E.C., for Mr. W. H. Gray. Mr. Boyes was known to many men outside the profession in connexion with a small debating society called the "Casual Club," of which he was for many years Hon. Secretary, and in which he took great interest. Mr. Boyes was, from his genial and open character and manners, a general favourite with all who knew him. He was emphatically a man with many friends, all of whom will regret his comparatively early death.

MR. E. M. WIMPERIS.—The death of Mr. E. M. Wimperis, Vice-President of the Institute of Painters in Water-colours, which took place on Christmas-day at the age of sixty-five, is a serious loss to English art. Almost self-taught as a water-colour artist, he was one of the finest and most powerful modern painters of the school of David Cox—the grand old water-colour school of broad treatment in the method best suited to the finest capabilities of the art. His landscapes, always among the best things in any exhibition in which they were found, had a certain sameness in subject; a wide heath and a great expanse of sky were subjects he never tired of; and yet they could not be called repetitions, nor could he be accused of mannerism; each work had its own individuality. He subsequently carried the same style into larger landscapes in oil, in which he was equally successful and powerful, though the style perhaps rather suggested a copy of a water-colour in oil. He was a true artist, whose works will be much missed on the walls of future exhibitions. We hope the Institute of Water-colours will give a collective representation of them.

* Out of print.

GENERAL BUILDING NEWS.

CATHOLIC CHURCH, EASTBOURNE.—The foundation-stone of the new Roman Catholic Church at Eastbourne was laid on the 11th ult. The building is being erected at the corner of Grange-road and the Meads-road opposite the Town Hall. The plan comprises a wide nave with narrow aisles, chancel, side chapels, and sacristies, with a tower and small spire at the corner of the junction of the two thoroughfares. The length of the completed church will be 102 ft. and the width 53 ft. 6 in. The walls externally will be faced with Sussex sandstone, with windows, doorways, and all dressings of Bath stone. The roofs will be covered with red tiles and the spirelet with copper. In the interior the columns and all stonework will be of Corsham stone. The main entrance will face Grange-road, and will have a boldly-moulded archway in the form of a projecting porch covering the doors, and above the archway a niche with canopy will rise to the apex of the porch gable. Above the porch will be a four-light tracery window. The side facing Meads-road will contain five windows and a side porch. Buttresses will divide the wall of the aisle into five bays. A feature of the church will be the absence of a clearstory to the nave, and consequently the aisles will be unusually lofty. A sanctus bell-cot in stone will rise over the chancel arch, and externally mark the separation of the nave and sanctuary. A small baptistry will project from the end of the south aisle. The tower will rise square to almost the height of the apex of the nave roof, after which it will be carried up in an octagonal form, with broaches at the angles; the upper story or belfry will have two light tracery windows with louvres on four sides. Internally, the nave will be divided into five bays, and will be separated from the aisles by four arches of wide span, supported by clustered columns with moulded caps and bases. A gallery over the main entrance will project into the church the space of the first bay, and form part of the structure, being supported by stone columns and arches. The Chapel of Our Lady will be parallel to two bays of the south aisle, and will be divided from it by open arches. The chancel will be separated from the nave by an arch rising to the full height of the ceiling, and will be divided into two bays, having a groined roof in wood, supported by clustered wall shafts. There will be a five-light tracery window high up over the altar, and four two-light tracery windows in the clearstory. On the south side a stone tracery screen will open into a small choir gallery over part of the sacristy. The sacristies will be on the south side of the chancel, and beneath the working Sacristy there will be the heating chamber, from which the church will be warmed with hot air. The organ will be blown by hydraulic power; and a chamber to accommodate the engine and also the bellows will be formed at the end of the nave. Accommodation will be provided for about six hundred persons, and the cost of the structure when completed will be about 11,000*l.* The architect is Mr. Frederick A. Walters, F.S.A., Westminster, and the contractor is Councillor Mark Martin, of Eastbourne.

INFECTIOUS DISEASES HOSPITAL, FORT WILLIAM, INVERNESS-SHIRE.—A new hospital for infectious diseases is to be erected at Fort William on the site of the former hospital, which was recently destroyed by fire. Messrs. L. & J. Falconer have been appointed architects.

BUILDING IN ARBROATH.—Employment in the building trades has been steady during the past twelve months. Few big jobs were undertaken, but large additions have been made to house-property in almost all parts of the town.

THE BUILDING TRADE, BELFAST.—The trade is in a considerably less prosperous condition than it was a year ago. Several causes have contributed to this regrettable state of affairs; but undoubtedly the principle one is the carpenters' strike, which was begun about eight months since, and still continues. Some hopes, however, are entertained that a settlement will have been come to before the new year is far advanced, as the men seem anxious for the master builders to make fresh proposals, and if this happens the result may be looked forward to as encouraging. There have been no great changes in prices, but a slight reduction has taken place in regard to iron and steel girders, which are now used very largely in building operations. Few new works have been undertaken in the centre of the city since this time last year, and the most of those which were then in progress and not of a public character have been seriously delayed in completion by the carpenters' strike. The building of the new City Hall is being pushed forward as rapidly as the magnitude of the structure and all the details that have to be taken into account will permit. The walls of the edifice can now be seen above the hoardings. Satisfactory progress is also being made with the erection of the Belfast Cathedral, which occupies the site of the old Church of St. Anne's in Donegall-street. The Bank buildings, put in the hands of contractors at the close of 1899, have been greatly altered and improved. Additions have been made to several factories to cope with increasing trade, but none of the developments made in this direction could be classified as important. A new bonded warehouse of extensive dimensions is being erected in Academy-street for the Irish Distillery, Limited; a new warehouse for Messrs. M'Crum, Watson, & Mercer in Linenhall-street; and a new warehouse for Messrs. Murphy & Stevenson in the same street; while similar buildings are being constructed for Mr. John Thompson, Victoria factory, on the Dublin-road, and for Mr. J. Lepper in Donegall-street. In ecclesiastical architecture a good deal of business has been done. Several new churches have been established, especially in the outlying districts of the city, while many of the older edifices have undergone more or less extensive renovation. A hopeful start has been made with the building of the Royal Victoria Hospital, which, when completed, will cost close upon 100,000*l.* The position of the trade is certainly rather dull at present; but the outlook in prospect of an immediate settlement of the dispute between the masters and carpenters is more cheerful.—*Belfast News Letter.*

STONE AND BUILDING TRADES, BRADFORD.—The great activity which marked these local trades in the early part of the year 1900 seems to have declined gradually down to comparative quietness. Whether the extension of the city boundaries and the additional tramway facilities will bring about a partial revival remains to be seen. Some of the principal contracts let during the year and now in progress are those in connexion with the Cartwright Memorial Hall, the new Fire Brigade Station, the new Conditioning House, the extension of the Electricity Works, the large tramcar shed at Thornbury, the Green-lane Board Schools, the extension of the Bradford Provident Industrial Society's premises in Sunbridge-road, and alterations at the Old Brewery premises in Brewery-street. Of projected new public buildings may be named the new Corporation baths in Morley-street and Drummond-road, district police offices and fire stations, and the extension of the Rawson Place Market, while the extension of the

Town Hall is receiving increased consideration. The Lancashire and Yorkshire Railway Company have let the contract for a large warehouse in Bridge-street, to cost about 60,000*l.* House building has gone on at a rapid rate in many parts of the city, especially in the districts of Horton Grange-road, Lidget Green, Bradford Moor, and Eccleshill. There is a lull now, however, in this class of building. The local stone trade, though brisk during the first half of 1900, has fallen off considerably during the latter half, but the London trade has been fairly good during the year, and continues so. The following are about the prices which have ruled during the past twelve months, the figures vary somewhat according to quality:—Self-faced flags, 2 in. thick, 2s. 4d. to 2s. 6d. per superficial yard; 2½ in., 2s. 10d. to 3s. 2d.; and 3 in., 3s. 6d. to 3s. 10d. Tooled flags, 2 in. thick, 3s. 6d. to 3s. 9d. per superficial yard; 2½ in, 4s. 6d. to 4s. 9d., and 3 in., 4s. 8d. to 4s. 10d. Ashlar, 1s. 8d. to 2s. 2d. per cubic foot. Outside wall stones, 44s. to 54s. per rood; inside ditto, 22s. to 24s; and pitch faced, 44s. to 50s. Common bricks, 25s. to 30s. per thousand at works. There has been a steady demand during the year for timber, and prices have been well maintained.—*Bradford Observer.*

BUILDING IN BRISTOL.—A considerable amount of building work has been done in the year. Right in the middle of the St. Augustine's site, which had been recommended for municipal buildings, but which the members of the Council could not make up their minds to secure for that purpose, a fine block has been under construction since January for the Star Insurance Company. The Eagle Insurance Company has found a new home in Baldwin-street. At the corner of Clare-street and St. Stephen's-avenue workmen have been busy on a new office for the Prudential Company, and the purchase by the Sun Company, a few days ago, of the site of Mr. Thornley's business premises at the corner of Clare-street and the Broad Quay seems to suggest still another insurance office in that locality. The site in the last case cost the buyers 26,000*l.* On a site between the Narrow Quay and Prince-street, the preliminaries have been practically completed for the erection of a large building by the Wholesale Co-operative Association. The amount to be spent on this structure has been spoken of as 40,000*l.* Messrs. W. D. & H. O. Wills have opened, on the field which used to be in old days the Bedminster Cricket Ground, an immense factory to accommodate their industry, and Messrs. J. S. Fry & Sons have had in hand for many months past schemes for still further enlarging their works. Operations have been going on on two sites—one in Union-street and the other in the Pithay. The tramway power-house at Counterslip, their new depots, the Council House annexe, the new public library in Cheltenham-road, Horfield Baptist Chapel, St. James's Parish Hall, All Hallows' Church, Easton, the extension of the Shaftesbury Hall, the new Y.M.C.A. at Totterdown, a new place of worship for the Bristol Society of the New Church, Cranbrook-road, the new church of St. Martin, Upper Knowle, the Franciscan Church at Bishopston, several new board schools, and the new wing of the Bristol University College are among the schemes which have occupied the builders, who have had also no small amount of business in converting private houses into shops and in the development of building estates. The fire which destroyed the former Colston Hall enabled defects to be removed in the new design, and the seating accommodation to be greatly increased. The new hall seats about 4,000 persons. At Bath there has been the opening of the Art Gallery; at Weston, the building of a new Wesleyan church and of a museum and library.—*Western Press.*

BUILDING IN DUNDEE.—A survey of the building trade in Dundee reveals the fact that much activity has prevailed in every branch of the industry Coming after two seasons of exceptional briskness this state of matters is highly satisfactory, and together the past three years will rank as about the best business period experienced by the Dundee building trade for a very long time. The work performed last year has been especially marked in the direction of tenement and villa residence building, and the districts favoured have been for the most part the east and north ends of the city, although, consequent on the opening up to the feuar of Blackness estate, operations in the west end have been greater than for several years back. It is a pleasing commentary, too, on the extension of the city's tramway system, that many of the new buildings have been erected, or are in the course of erection, along those routes tapped by the new lines or in the vicinity of their termini. This has been more pronounced in the Maryfield and Strathmartine suburbs, and by the time the cars are running to Ninewells a large addition to house property will have been made at this, the extreme west end of Dundee's boundaries. In 1899, and indeed for a considerable time previously, there was an outcry that the city was being overbuilt with tenement houses. This agitation seemed n no way to deter builders from continuing the campaign, but now matters appear to have reached high water level, and on all hands it is admitted that the putting down of new house property of the tenement class will practically have to be stopped for the best of all possible reasons—scarcity of tenants. A very great deal of money was sunk last year in villa building, and the demand here is still sufficient to encourage further outlay on the part of those with cash to spare for investment. Amongst the building work of 1899 has to be included several large Corporation and private contracts carried out in the centre of the city, and some of these have been of an important character—notably the new municipal fire-station and the Parish Council offices. Church building has again formed a feature of the year's work.—*Dundee Advertiser.*

BUILDING IN LEITH, EDINBURGH.—A report issued by the Burgh Surveyor for Leith shows that during the year eighty-four applications for warrant to build were reported on at the Dean of Guild Court, compared with ninety-one the previous year. Several of the largest of the buildings which were for speculative purposes, including blocks of tenement houses, have, however, never been prosecuted further. On the whole, the year has been a quiet one compared with 1899, which was marked by exceptional activity. In the latter part of the year especially, the erection of new buildings apparently received a check, and the masons' strike, occurring as it did when a lull in the trade had taken place, most likely deterred many beginning operations until the spring of the next year. The erection of villas in the Trinity district has continued, but on a much more moderate scale; and in South Leith several large blocks of dwelling-houses have been constructed. Amongst the principal new buildings completed during the year were a church, an addition to the hospital, and offices and bonded stores. Work in the Dean of Guild Court during the last two or three months has diminished very much; and the absence of plans for any large buildings before the Court shows that there is a prospect of quietness in the building trade during the winter especially.—*Scotsman.*

BUILDING IN HALIFAX.—The building trade, in comparison with previous years, has been quiet. Several large contracts which have afforded ample employment for several years for masons and joiners have practically been completed, including the large Workhouse Hospital and the new Victoria Hall. A good many men are now unemployed, and those who are at work are mainly engaged on the erection of houses and cottages.

BUILDING IN HUDDERSFIELD.—The building trades have been in a fairly flourishing condition throughout the year, but few works of much extent are at present in prospect for the coming year. The new Drill Hall is nearly finished, the new Temperance Hall is being roofed, and the new Church of St. Barnabas at Crosland Moor is well advanced, the generating station at Longroyd Bridge for the Corporation electric tramways is now nearly completed, and very soon the works of the Butterley reservoir of the Corporation Waterworks in the Wessenden Valley, Marsden, which have already cost 271,665*l.*, will be finished. Up to November plans had been approved by the Corporation of 273 dwelling-houses (against 259 in the year preceding), 60 business premises, and 193 miscellaneous buildings. The chief work of the new year is the erection of the lunatic asylum at Storthes Hall, near Kirkburton, and the extension by the Co-operative Society of their premises over the site of the present Victoria Temperance Hall in Buxton-road.

BUILDING IN HULL.—Building in the city has been exceptionally brisk during the past year. Many large buildings have been undertaken, and a great deal of house property erected, particularly in the outskirts of the city. This has been owing to the service of trams which has been in operation for the past eighteen months. A large area has been cleared of slum property, and blocks of artisans' dwellings are being put up by the Corporation. The year has been free from serious labour disputes affecting builders, consequently good progress was made in the erection of many buildings. Among these are the offices of the Yorkshire Penny Bank in Savile-street, the National and Provincial Bank, Scale-lane-corner; the Ocean Accident Insurance Corporation, in Low-gate; the Telephone Exchange, in Mytongate; the Constitutional Club in Carr-lane, the extension of the Hull Savings Bank in George-street, the Pacific Club in High-street, and the Crematorium. Several new branch banks have been erected, and the foundations of one large Board school have been laid. The outlook is said to be very bright.

THE BUILDING TRADE, INVERNESS.—For several years there has been a boom in the building trade in Inverness. Villa residences, business blocks, and dwelling blocks of all kinds were built with so much enterprise that the inevitable "slump" came, and for the last year or two there has been a feeling amongst monied people in the town that it is sufficiently built. The result now is that comparatively little building has been done during the past year, and that only what was necessary. Probably not in the memory of many contractors has there been such a dulness in trade. Fortunately, there has been some stir in the country, and the workmen have been able to get employment elsewhere. Many of them have been working at the huge extensions to Skibo Castle, which are being carried out by Messrs. Ross & Macbeth, architects, Inverness. There have been a few big jobs going on in Inverness, although generally speaking trade was quiet. What will be the largest block of buildings erected in Inverness for a quarter of a century is nearing completion in Queen's Gate. The masonry work is all but finished, and the street may now claim to be one of the finest in the town, from a building point of view. The block has a frontage of 231 ft. to Queen's Gate and 50 ft. to Church-street. The ground floor consists of eleven shops, while the first and second floors contain suites of offices, and on the top, dwelling-houses. The feature of the block is a large hotel. The buildings will be up to date, lighted with electricity throughout, and the hotel will have hydraulic lifts, with a passenger and luggage service to all the floors. The erection of these buildings, it may be mentioned, was the cause of the demolition of one of the oldest houses in town. The total cost of the buildings is estimated at 25,000*l.* The work is being carried out under the direction of Mr. W. Carruthers, architect. Another building which has given some work, and which is in course of erection, is the Crown United Free Church. With spire, it will cost about 6,000*l.* The architect is Mr. J. R. Rhind.—*Aberdeen Journal.*

THE BUILDING TRADE IN LEEDS.—On the whole those in Leeds who are associated with the building trade are enabled to look back upon the year with more satisfaction than was the case last December. They have been, for the first time for some years, free from trade disputes, and that has been by no means an unimportant factor. It is true the Tyneside dispute has brought a disturbing element at the close of the year. There, the bricklayers struck work in May last for an advance of wages from 10d. to 11d. per hour, and though the Northern Centre of the Masters' Federation, to which the Yorkshire masters are affiliated, have taken the matter up, there would seem to be no strong disposition locally to push matters to an extreme by locking out the Leeds bricklayers in sympathy. Trade, therefore, has been very brisk during the year. In the last month or so there has been a hesitancy to let new contracts, the architects preferring to await a fall in prices. This fall, so far as certain classes of material are concerned, has already begun, but timber retains its abnormal price, and it is said that no substantial reduction will be made until the re-opening of the Baltic ports. Speculative builders have for some time past been kept from launching out on this account. Since March 25, 1900, which marks the beginning of the official year, 2,342 new houses have been erected and completed in Leeds. The approximate number of miscellaneous buildings erected and certified during the same period is 2,021, and it includes schools in Thornville-road, Woodsley-road, and Broad-lane (Bramley), a woollen department and a refectory at the Yorkshire College, Emmanuel Institute (Woodhouse-lane), Constitutional Club (Roundhay-road), imbecile ward at the Beckett-street Workhouse, a mission church, three factories, one foundry, and one engineering works. Then there are several large buildings nearing completion. The improvement of Briggate continues, and with the completion of the fine line of new buildings at the top of the hill and of the new arcade, probably the finest in the north, the character of the street will be further changed. Lower down, the rebuilding of the Bull and Mouth estate is proceeding apace, and the new street from Duncan-street to Kirkgate, cutting through a "rookery," will be especially welcome. The Masonic Hall and the Leeds Pupil Teachers' Centre are also well forward. Looking ahead, there are such important schemes to be executed as the demolition of the Dispensary buildings, in order to complete the improvement of North-street, and the provision of a new home for the institution on Hartley Hill, and the pulling down of St. Ann's Cathedral for the improvement of Cookridge-street. This will cost the Corporation 40,000*l.* and another site for the Cathedral, and it is expected that the latter will be found in Great George-street. Several large contracts will shortly be let, and these will include a Market Hall, the Infectious Diseases Hospital at Manston, some churches and chapels, and several industrial establishments.—*Yorkshire Post.*

BUILDING IN MANCHESTER.—Builders and contractors in the Manchester district have experienced an unvarying briskness in trade throughout the year, but they have one important cause for regret. Many of them had large contracts in hand at the beginning of the year, and during the twelve months the prices of materials in all branches of the trade rose so rapidly that contractors in many instances sustained serious losses. Though this was a very important phase of the year's business, builders, &c., have scarcely any other reason to complain. Wages have maintained a high standard, and the workmen have enjoyed uninterrupted prosperity. Many large contracts have been in hand by Manchester and Salford firms, including the erection of the new station for the Lancashire and Yorkshire Railway Company at Bolton, which is to cost 300,000*l.*; the building of an asylum at Warwick, the cost of this being also about 300,000*l.*; large undertakings for the London and North-Western Railway Company, the Great Northern Railway Company, and various large works in the neighbourhood of the Ship Canal. The prospects for the coming year are said to be satisfactory.

THE BUILDING TRADES, PERTH.—There is no distinguishing feature in last year's building operations. The end of 1899 saw a number of impor-

tant buildings in course of erection. Of these some are still in progress. Among those are the General Accident Assurance Company's office at the corner of High-street and Tay-street; the Royal Bank buildings at the corner of High-street and Kinnoull-street, which now almost complete the new street; the stable at Feus Wynd; and the Hospital for Consumptives at Barnhill. The principal buildings of last year include a cooperage and store in Gray-street; the new Central District School in Meal Vennel; and laundry and gymnasium accommodation for the Caledonian-road School. A block of shops and dwelling-houses at the corner of South Methven-street and South-street will in the future improve that part of the town. A new mission hall for the United Free St. Stephen's Church, and a new church for the United Free St. Paul's congregation are also being erected. A factory at Feus Wynd is on hand, and additions to dyeworks. Besides these, the Corporation are working at a scheme of working-class houses. Two blocks at Old High-street have been completed, and are now occupied, and two additions to these are in course of erection. This scheme is the realisation of a long-spoken-of and much-needed improvement—the widening of Old High-street. Seven large blocks of tenements have been in course of erection, chiefly in the northern district. During the year fourteen double villas have passed the Court, a large proportion of these being in the Craigie district. Many alterations and additions have been made to property in the town, and a large addition is to be made to Messrs. Pullar's dyeworks. Whatever the prospects for this year may be—and from the look of things in other towns it cannot be so good as recent years—1900 has on the whole been marked with a fair amount of activity, but with master and workman working hand in hand, and in view of a reduction in the price of material, the prospect for the future may not be discouraging.—*Dundee Advertiser.*

HOME FOR CHILDREN, TUDHOE, DURHAM.—A home for children has just been opened at Tudhoe. The architects were Messrs. Dunn, Hansom, & Fenwicke, of Newcastle, and Messrs. Johnson & Hanby, of Stockton-on-Tees, were the contractors.

BUILDING IN PETERHEAD.—The local building trade shows signs of great activity. Several new buildings have been completed in the course of the year, including the new Parish Home in King-street, a block of tenement houses in Kirk-street, a block of buildings at the corner of Windmill-street, &c. The building trades altogether have had a busy time, and the prospects are good for next year.

BUILDING IN ST. ANDREWS.—The building trades in the city have been busy throughout the year, and the prospects for the current year are fairly good. New ground has been opened up at the west end of the town within the area of the recently extended burgh boundary, and a number of smaller-sized villas are being erected. Properties are also expected to be built in other parts of the city in the course of the year.

BUILDING IN SHEFFIELD.—The operations of the builder are rapidly obliterating many of the beauties of Sheffield's suburbs. The city which was, a year or two ago, encircled with picturesquely wooded hills, is now surrounded with a girdle of brick-built cottages, the fiery colour of which is much too striking a complement to the soft green of the hills to be artistic. One can hardly look on the unpaved roads of many of the new streets and imagine that only a year or two ago nothing but meadows and trees existed there. In some places the smoke of the town has not yet had time completely to disfigure the green fields, and consequently there is a strange mixture of pastoral landscape and harshly-outlined streets. In another year or two, if the demand for cottage houses is maintained, the summits of the hills around the city will be reached by the builder, and the chief beauties of Sheffield's immediate surroundings will have been destroyed. The abnormal increase in building operations recorded in 1899 has been strongly maintained during the last twelve months. There has been a slight decrease in the number of houses erected during the year, but the falling off is more than accounted for by the special circumstances which existed in 1899. The approximate number of houses certified for occupation during the past year was 2,797, as against 2,616 the year before, *i.e.*, an increase of houses certified of 181. During the year 1365 plans for all classes of buildings have been deposited, as against 1474 in 1899, a decrease of 109. In regard to street and sewage works thirty-two plans have been approved. These plans have involved or will entail the making of 5,051 yards of streets with sewers. There have also been sent in eighteen plans for sewers alone, and these will necessitate the making of 564 yards of sewers. The total extent of streets with sewers and sewers alone approved during the year thus amount to 5,615 yards, or over three miles. Coming to minor buildings, we find that ninety-two plans for such erections as cowsheds and stables have been approved during the year, as against ninety-nine last year. Plans for warehouses, workshops, &c., have numbered 654, as against 477 in 1899. The summary of statistics shows that the number of plans deposited for houses has fallen off by 1,200, and plans for other buildings have increased by something like 180; 970 of the plans which have been deposited have been approved.—*Sheffield Independent.*

BUILDING IN YORK.—The erection of new buildings has been very brisk. Most of the houses have been erected on the new estates in Bishopthorpe-road, South Bank, Huntington-road, Leeman-road, Burton-lane, and Acomb-road. Two hundred and thirty-six plans have been submitted during the year, of which 170 have been passed, comprising 656 houses, 114 warehouses, outbuildings, &c., fifty-nine alterations and additions to premises, twelve new streets and back roads, and eleven public buildings, as follows: A church in Burton-lane, a Primitive Methodist chapel in Albany-street, a bicycle track and club-house Hull-road, two public-houses, three mission-rooms, and an arcade in High Ousegate.

THE PRINCE'S THEATRE, PRESTON.—This place of amusement, which has been in the hands of the builders for some fifteen weeks, has just been re-opened. One of the most noticeable changes in the auditorium is the removal of the roof timbers and the wooden uprights which supported them, so that the occupants in all parts of the balconies are now enabled to have an uninterrupted view of the stage. Improvements have been effected in the ventilation, the appliances being provided by Messrs. James Stott & Co., engineers, of Manchester. The old boarded floor of the pit has been removed and replaced with Duffy's patent wood block flooring laid on cement concrete by the Acme Wood Flooring Company, Limited, London. Additional emergency exits from the pit have been formed on each side of the stage. The staircases to the centre circle and balconies are of stone, enclosed with brick walls, and both the mezzanine floor and ceiling above it are of fireproof construction. The seating accommodation of this part of the house has been rearranged and improved, and the two approaches from the mezzanine floor to the circle are placed in direct communication with the staircases. The proscenium opening, 28 ft. wide and 23 ft. high, is fitted with an iron and asbestos fireproof curtain, supplied by Messrs. Merryweather & Sons, of London. The proscenium opening has been decorated in fibrous plaster by Messrs. Goodall & Co., of Liverpool, who also executed the balcony front. The stage has been improved by the provision of fly floors 33 ft. apart, scene artist's painting bridge, and a large grid, 50 ft. above the stage. The stage is also considerably enlarged, being 63 ft. wide and 40 ft. deep, giving an area of 2,520 square feet. Eight additional dressing-rooms, with necessary conveniences, have been provided at the back of the stage, from which they are cut off by iron doors and a corridor, the private entrances for the artistes being in Feeble-street and Tithebarn-street. The contract for the whole of the work was let to Messrs. Whiteside, builders, of Preston; and the sub-contractors were Messrs. T. Croft & Sons, brickwork and masonry; Mr. W. Dryden, ironfounder's work; Mr. Thomas Nickson, slating; Messrs. Foster & Son, Padiham, plasterer's work; Mr. Edge, gas-fitting and stage lighting; and Messrs. Park & Son, plumber and painter's work. The alterations have been carried out under the superintendence of, and according to plans prepared by, Mr. W. Munford, architect, Preston.

EUSTON THEATRE OF VARIETIES.—On the 19th ult. the Euston, which is situated just opposite the Midland terminus in Euston-road, was opened. There is accommodation for about 3,000 people. The house has been built from the designs of Messrs. Wylson & Long.

VICTORIA THEATRE, BROUGHTON, MANCHESTER.—This theatre, which has been erected near the junction of Great Clowes-street and Lower Broughton-road, has just been opened. The front of the building is of terra-cotta. On the ground floor are three shops, the main entrance, and the pit entrance. The front is divided by pilasters into bays, the centre one being surrounded by a carved pediment, above which is an attic story with a copper dome and iron cresting. From the main entrance the vestibule is entered; this is 24 ft. long by 16 ft. wide, with mosaic flooring and marble dado. To the left is the pay-box to all parts of the house, and to the right a stair to the balcony. Facing the entrance from the street the vestibule opens direct into the grand foyer, 34 ft. by 18 ft., with mosaic flooring, walls panelled in fibrous plaster, and painted ceiling. From the foyer runs a corridor leading direct to the stalls, dress circle, and grand saloon. The auditorium is planned upon the composite two-tier principle, having orchestra stalls, pit stalls, and pit on the ground tier, dress circle and balcony above. Higher up the gallery, and on each side of the stage front, are two boxes. Seats are provided for 2,000 persons, but the holding capacity of the theatre is estimated at 2,500. The grand saloon for the dress circle and balcony is 42 ft. long and 25 ft. wide, and the orchestra stalls have their own saloon on the same floor. The lighting of the theatre is at present by gas, but electric light fittings have been installed in view of future requirements. The stage is 40 ft. from the curtain line to the back wall, 74 ft. in width, and nearly 60 ft. from the stage to the grid. The proscenium opening is 32 ft. in width. Abutting the stage are eighteen dressing-rooms as well as property-rooms. Mr. Bertie Crewe, of London, was the architect, Messrs. William Brown & Sons, of Salford, having been the principal contractors. The cost has been nearly 25,000*l.*

PUPLIC BATHS, LEYTONSTONE.—The foundation stone was laid recently of the public baths which are in course of erection in Cathall-road, Leytonstone. There will be a first-class swimming bath 100 ft. long by 30 ft. wide, the depth varying from 6 ft. 6 in. to 3 ft. 6 in., a second-class bath, 80 ft. by 30 ft., and a number of slipper baths. Mr. W. H. Duffield is the architect, and Mr. F. J. Coxhead, the builder.

THE CAMDEN THEATRE, CAMDEN TOWN.—The latest addition to the list of district playhouses is the Camden Theatre, situated at the southern end of High-street, Camden-town. The architect is Mr. W. G. R. Sprague, while Messrs. Waring have carried out the decorations. The theatre is built of stone, and over the main entrance there has been constructed a promenade and winter garden. The interior is partly on the cantilever system. The building, which gives accommodation to an audience of over three thousand, has cost 50,000*l.* The stage is 40 ft. deep by 75 ft. wide, with a height of 60 ft. to the grid, and electric light is the only illuminating agent. The ceiling is supported by a cove.

NEW ASYLUM NEAR ABERDEEN. — The offer of Mr. Edgar Gauld, builder, Aberdeen, to execute the mason work of new asylum at Newmachar has been accepted by Aberdeen City Parish Council. The amount of this contract is about 30,000*l.*, and operations will be commenced at once. Mr. A. Marshall Mackenzie, A.R.S.A., Aberdeen, is architect. The other works will be contracted for by-and-bye; but the mason work is to be commenced at once.

THE PRESERVATION OF ROCHESTER CASTLE.—The repairs to the keep of Rochester Castle, arranged to be executed during the year 1900, are now completed. The work has been carried out under the supervision of Mr. George Payne, architect. Half of the interior of the building, on the southern side, as far down as the floor level of the state chamber, has been restored, and certain arches which were structurally unsafe have been made good. A gallery along the same side was in a very ruinous state, especially where the great crack occurred after the rebuilding of the south-east angle in the thirteenth century. In his report to the Rochester Corporation, Mr. Payne states that a large amount of the damage everywhere present in this gallery was due, as in all accessible parts of the keep, to the wanton destruction of arches and jambs in past times for the sake of the squared stones they contained. As these supports had been removed, it was deemed necessary for the stability of the fabric to replace them with Kentish rag. One outcome of the repair of the eastern wall of the keep has been to bring several interesting architectural features to light, and these are now permanently exposed to view. The beautiful arcade dividing the state chamber has been successfully treated. Traces were discovered, whilst the central wall was being repaired, that the keep had at some period suffered from fire. The cleaning out of the well of the keep proved to be a laborious work. The total depth from the top of the central wall of the keep to the bottom of the well was found to be 136 ft., and the diameter of the well-shaft from 2 ft. 9 in. to 4 ft. At low tide the water in the well has a depth of 18 in., but at high tide it reaches 9 ft.

SANITARY AND ENGINEERING NEWS.

WATER SUPPLY, LIVERPOOL.—The ceremony of cutting the first sod of a new reservoir at Prescot, in connexion with the water supply of Liverpool, took place on the 22nd ult. Mr. J. Parry is the water engineer to the Liverpool Corporation. The work will be carried out by Messrs. Holme & King.

WATER SUPPLY, SCONE, PERTHSHIRE. — The water supply for the village of Scone was turned on on the 26th ult. Mr. W. R. Copland was the engineer.

FOREIGN.

FRANCE.—The Committee of the Société des Artistes Français (Old Salon), as the result of a somewhat heated discussion, has resigned bodily, and a new committee is to be elected.——The Académie des Beaux-Arts has elected M. Camille Saint-Saëns President, and M. J. P. Laurens Vice-President.——The Conseil-Général of the Seine has petitioned the Government for the formation of a School of Arts and Industries in the Department.——The new buildings of the Bibliothéque Nationale, fronting on Rue Colbert and Rue Vivienne, are nearly completed.——The new building for the Académie de Médecine, in the Rue Buonaparte, will be opened next month.——An International Exhibition is to be held at Brest, to open in the middle of June.——The Municipality of Paris has acquired the mural paintings which decorated the staircase of the old Hôtel de Luynes, now in course of demolition. These works, executed in 1748 by Brunetti, show a number of personages in Watteau costumes seated on a balustrade intercepted by Corinthian columns; a garden scene forms the background. The three frescos, which are in very good preservation, will be sawn from the wall and refixed, most probably, in the Petit Palais.——M. Camille Lefèvre,

the sculptor, is completing for the Mairie of Issy-les-Moulineaux a fine relief representing the Republics of 1792, 1830, and 1848 offering palms to that of 1870.——We have to record the death of M. Paul Lenard, sculptor, and author of the statue of Lord Brougham erected in the Allée de la Liberté at Cannes. He died at Cannes, at a villa which he shared with M. Gérôme.

CANADA.—Owing to the number of accidents which have occurred, a committee of the City Council of Toronto have under consideration the subject of the inspection of elevators by the municipality. The estimated number of elevators in that city is placed at 1,000.—— The authorities of Queen's University, Kingston, have issued an invitation to architects to submit plans and designs for new buildings, to cost about 150,000 dols. A professional assessor not having been appointed to adjudicate on the plans, the Ontario Association of Architects has approached the authorities in reference to this omission.—— Official statistics relating to the yield of minerals in the Province of Quebec in 1899 show that during the year the following building materials were raised or made :—Bricks, valued at 600,000 dols. ; building stone, 250,000 dols. ; lime, 140,000 dols. ; cement, 31,130 dols. ; granite, 14,780 dols. ; flagstones, 3,500 dols. ; and slate, 30,119 dols.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS. —Mr. Edward Chesterton, a member of the firm of Chesterton & Sons, auctioneers, for upwards of thirty-five years, has retired as from December 31. The business will be continued, under the style of Chesterton & Sons, by the remaining partners, Mr. Sidney R. Chesterton, Mr. C. F. Slater, and Mr. W. H Wells, who have taken into partnership Mr. Frank S. Chesterton.——Messrs. Hayward Bros. & Eckstein, engineers and ironfounders, of Union-street, Borough, have opened a branch office and showrooms at 63, Mosley-street, Manchester.—— Mr. Leopold Farmer, auctioneer and surveyor, of 46, Gresham-street, has taken into partnership his two sons, Mr. Harold L. Farmer and Mr. Herbert L. Farmer ; and the firm will in future be known as "Leopold Farmer & Sons."

EDINBURGH AND LEITH MASTER BUILDERS' ASSOCIATION.—The annual dinner in connexion with this organisation was held on the 20th ult. in the Royal British Hotel. Mr. James Millar, the President, was in the chair, and the croupiers were Councillors Purves and Messrs. Drysdale and Lownie. Included in a company of about 130 were representatives of the Town Councils of the city and Leith, the Architectural Association, the Architectural Society, and the Society of Ordained Surveyors, the Glasgow Master Masons' Association and Master Wrights' Association, the Dundee and District Master Builders' Association, the Perth and District Federation, the Dumfries Builders' Association, the Aberdeen Federation, and the local House Factors' Association. The Chairman gave "The Queen and Royal Family," and Mr. Ormiston "The Navy, Army, and Reserve Forces," for which ex-Bailie M'Leish, Perth, responded. In submitting the toast, "The Lord Provost, Magistrates, and Town Councils of Edinburgh and Leith," the Chairman gave it as his opinion that if the housing of the poor was to be thoroughly gone into it would not be successfully accomplished by private speculation. At present the building trades were suffering from a slight depression, but he did not expect they would suffer much or very long. Bailie Murray and Bailie Craig replied. Mr. J. A. Williamson, a member of Council of the Edinburgh Architectural Association, proposed the toast of the evening—"The Association." In doing so, he said that they all regretted the signs of a slightly falling trade, but hoped it might prove but temporary. The record of the city's growth was somewhat phenomenal. Since the passing of the Valuation Act in 1855 there had been a steady increase in the rental of the city, and of late years the ratio of increase had been very marked. Therefore, they all trusted that things would take a turn, and speedily revert to the older and more satisfactory conditions, in which the trades represented there were so deeply interested. For the sake of the workers they all desired an active and healthy state of trade, and personally he did not think the outlook was so serious as was sometimes suggested. In conclusion, Mr. Williamson congratulated the Association on the fact that a distinguished representative of the building trade had been selected for the highest place in the municipality. — Mr. Bruce, in responding, spoke of the importance of the building industry, and said that without it amongst them the citizens would not be so comfortable as they were to-day. The Association existed for good—for the prosperity of the different branches of the trade. No doubt they had their difficulties at times. Reference had been made to the masons' strike, throughout which prolonged period the unity of the organisation was maintained. But for that unity the employers would have failed. With it they succeeded, and they succeeded because of the stupidity, he was sorry to say, of the operatives. They condemned themselves by the proposition they submitted to the employers. What was wanted was that employers and employed should work together in harmony, because what was for the interest of the one class was for the interest of the other. In connexion with the strike, he did not think the leaders of the men were justified in giving the advice they did. The present arrangements, he thought, were neither sound nor correct. There ought to be a minimum rate of wages, but no maximum, and the period during which any agreement should last should be reduced from a year to six months ; while there ought to be legislative enactment whereby strikes should be illegal, and there should be a Council of Arbitration established in the country for the settlement of disputes. Treasurer Graham Yooll gave "The Scottish Building Trades Federation," and among the other toasts were "The Architects and Surveyors," "Our Merchants and Contractors," "The Chairman and Croupiers."

GLASGOW ARCHÆOLOGICAL SOCIETY. — The monthly meeting of the Glasgow Archæological Society was held on the 20th ult. Mr. C. E. Whitelaw said, in view of the discussion which had taken place about the placing of monuments in Westminster Abbey, that the members of the Glasgow Archæological Society ought to pay attention to their own cathedral, where several large, costly, and very conspicuous monuments had been placed in the nave. Several of them were made of a material which it was impossible for the hand of Time to tone to a colour suitable to their surroundings—most of them were made of white marble. The persons to whom they had been raised were at present important, but whether they would be important to another generation was an open question. He thought it necessary for the preservation of the appearance of the cathedral that no more monuments should be erected there, especially as they were being placed to perpetuate the memory of men who were not celebrated, but were merely known at the time for having had larger purses than their fellow-citizens. Men whose memory was celebrated by a monument in the cathedral should be of great outstanding merit, men renowned in the affairs of the nation and also of the city. The Society ought to consider the matter now, before any serious harm was done. Many of the monuments were in questionable taste, and if no more were erected it would be an advantage to the cathedral.—Mr. John Edwards thought the matter was one which ought to be very carefully considered before any more monuments of modern type were erected, Mr. J. D. Duncan said that when he was recently in the cathedral he was struck by the inappropriateness of many of the monuments in the nave. He thought it would be desirable to ask the Board of Works to see that great caution was used in the granting of facilities or permissions to erect monuments in the cathedral. The matter was remitted to the Council, to which Mr. Whitelaw was added for the occasion. Mr. George Neilson, Vice-President, read a paper on "The Work and Place of Huchown."

NEW ELECTRICITY STATION, ABERDEEN.—The Gas and Electric Lighting Committee recommend that a portion of the new electric station at Dee Village be gone on with, including offices, half of boiler-house, half of engine and dynamo house, and a number of minor works, at a total cost of about 25,000*l.* The machinery will cost, say, 20,000*l.* additional. The plans are by Mr. Bell, Electrical Engineer to the Corporation, and Mr. Smith, Corporation Gas Manager.

BRITISH FIRE PREVENTION] COMMITTEE.—Pending the opening of its new testing station, the British Fire Prevention Committee will issue reports on tests undertaken in the past year with the Mural and Decorations Company's floor, the "Cunnah-Wright" partition, the Williams' fireblind, with two iron doors, and two pairs of wood doors. Summaries regarding tests undertaken at the North Bank Testing Station are also in preparation. Regarding the Committee's new testing station at Westbourne Park, a sub-committee of the executive will have charge of the arrangements, Mr. Ellis Marsland presiding.

ELECTRIC LIGHTING WORKS, STOCKTON.—For public lighting purposes at Stockton, the electric current was turned on on the 18th ult. at the Corporation's new electricity works. The system of supply is the "three-wire continuous current" system, with 460 volts between the outer conductors, the standard pressure of supply to the consumers being 260 volts. The generating machinery now installed consists of three "Universal" engines coupled to the Brush Company's standard type of continuous current generators. The dynamos are controlled by automatic switches and also by fuses, which will prevent damage being done by an excessive current. Up to the present the cables are laid in Thompson-street, High-street, Norton-road, Bishopton-lane, Dovecot-street, Yarm-lane, Wellington-street, and Silver-street. Contracts have also been let for extending the cables to Yarm-road, Oxbridge-lane, Richmond-road, and Church-row. Altogether there are three miles of distributor and one and a quarter miles of feeder cables. The street lighting is at present confined to the High-street, Bishopton-lane, and part of Norton-road, and consists of thirty Crompton arc lamps. The price of supply is fixed on the Wright system, at 6d. per unit for the first hour's use per day and 2½d. per unit afterwards, the prices for power being 5d. and 1d. respectively. The estimated cost of the scheme is 26,500*l.* Mr. C. S. Vesey Brown, the electrical expert and adviser, gave a technical explanation of the scheme.

ELECTRIC LIGHT WORKS, DARLINGTON.—On the 17th ult. a number of members of the Corporation, of Darlington, and officials, assembled at the new electric lighting works in Haughton-road to witness the inauguration of the new system of lighting which has been undertaken by the Corporation at a cost of 26,000*l.* The system as at present arranged is a three-wire continuous current of 460 volts. Messrs. Scott & Mountain, of Newcastle, have supplied the engines and dynamos ; Messrs. Cox-Walker have provided the switch arrangements ; Mr. J. R. P. Lunn was the engineer under Professor Kennedy. The mains have been constructed by Messrs. Callerder, of London. The building containing the engines, dynamos, &c., is from the plan of the Borough Engineer, Mr. Smith. The works are capable of supplying about 7,000 8-candle lamps.

INCORPORATED CHURCH BUILDING SOCIETY.— The Incorporated Society for promoting the enlargement, building, and repairing of churches and chapels, held its usual monthly meeting on Thursday, December 20, at the Society's house, 7, Dean's-yard, Westminster Abbey, S.W., the Rev. Canon C. F. Norman in the chair. Grants of money were made in aid of the following objects, viz. :—Building new churches at Bristol, All Hallows, 150*l.* in lieu of a former grant of 110*l.* ; Chichester, St. George, 315*l.* in lieu of a former grant of 300*l.* ; Darwen, St. George, Lancs., 143*l.* ; Exeter, Emmanuel, 370*l.* in lieu of a former grant of 350*l.* ; Lower Sydenham, Christ Church, Kent, 125*l.* ; Tilbury, St. Chad, near Gravesend, 100*l.* and Weston-green All Saint's, near Thames Ditton, Surrey, 20*l.* ; and towards enlarging or otherwise improving the accommodation in the churches at Billington, St. Michael and All Angels, near Leighton Buzzard, Beds., 10*l.* ; Balham, St. John the Divine, Surrey, 200*l.* in lieu of a former grant of 150*l.* ; and Compton Martin, St. Michael, near Bristol, 20*l.* A grant was also made from the special Mission Buildings Fund towards building St. Helen's Mission Church, Stapleford, near Nottingham, 15*l.* The following grants were also paid for works completed :—Waltham Cross, St. George, Middlesex, 500*l.* on account of a grant of 1,000*l.* ; Aberayron, Holy Trinity, Cardigan, 40*l.* ; Nettleton, St. Mary, near Chippenham, Wilts, 10*l.* ; Cubert, St. Cubert, near Grampound-road, Cornwall, 10*l.* ; Kensal Rise, St. Martin, Middlesex, 100*l.* ; Castle Bytham, St. James, near Grantham, Lincs, 25*l.* ; Little Ilford, St. Barnabas, Essex, 75*l.* ; Cobridge, Christ Church, near Stoke-on-Trent, 20*l.* ; Llandyssilio, St. Tyssilio, Pembs, 20*l.* ; Streatham, St. Margaret, Surrey, 200*l.* ; Bodferin, St. Mervin, near Pwllheli, 40*l.* ; Wandsworth Common, St. Mary Magdalene, Surrey, 70*l.* ; Rackenford, All Saints, near Witheridge, Devon, 15*l.* ; Catford, St. Andrew, Kent, 30*l.* ; Boscastle, St. James, Cornwall, 20*l.* ; and Portmadoc, Carnarvon, 15*l.* In addition to this, the sum of 158*l.* was paid towards the repairs of eleven churches. The grants made at this meeting have nearly exhausted the funds at the disposal of the Committee. They plead earnestly to the friends of the church at large for liberal contributions to enable them to vote substantial grants and to continue the work which this Society has so successfully carried on during the past eighty-three years. During the present year 9,710*l.* have been voted in grants from the general fund, and 355*l.* from the Mission Buildings fund.

BRADFORD CITY ARCHITECT.—The Bradford City Council has recently had under consideration a number of applications for the post of City Architect. There were originally seventy candidates, and of these six were selected to appear before the Finance Sub-Committee empowered to deal with the matter, on Monday last. The appointment was ultimately conferred upon Mr. F. E. P. Edwards, A.R.I.B.A., for some time chief assistant in the Architectural Department of the Liverpool City Surveyor (Mr. Thomas Shelmerdine) and joint Hon. Secretary of the Liverpool Architectural Society.

THE SLATE TRADE.—The past year will, we believe, show a falling-off in the make of slates, both in Carnarvonshire and Merionethshire. Trade in the former has been brisk the whole year, but in the latter there was a slight falling-off in the spring owing to foreign competition. The quarry-owners, however, by an adjustment of prices, recovered the bulk of their trade. The past century has seen an immense increase in the slate trade. Some of the quarries were worked by the Romans, but in 1800 the number working, and output, were very small, the method of working, means of transit, &c., being primitive. The tonnage went on increasing up to 1898, when the value reached 1,787,671*l.* Since then it has slightly decreased, owing to a falling-off at some of the older quarries, and as the area of the Bangor and Festiniog veins is comparatively small, nearly all being worked, it is not likely to increase. The tendency of late years has been to close unproductive quarries and combine the management of others, so we may look forward to their again coming into favour for investment, the trade being one which, with proper management, shows very good returns ; but owing to the best paying quarries being in the hands of private individuals, or companies whose shares are not quoted, little is heard of the large profits made. The new century will no doubt see large savings

effected by the use of electric power. Electric power has already been adopted in some quarries and is certain to be more extensively used.

RESTORATION OF INVERNESS MARKET CROSS.—The old Inverness Market Cross, which has just been restored, was unveiled on the 24th ult. The cross has been placed in front of the Town Hall. The carving was executed by Mr. Andrew Davidson at Rome from designs by Mr. J. W. Gall, of Inverness.

SEDGWICK MEMORIAL BUST, BRIGHTON. — On the 26th ult. Sir Henry Irving unveiled a bust of the late Miss Amy Sedgwick, which has been placed in the Royal Pavilion, Brighton. The bust is the work of Signor Bozzano, who was employed by the Statuary Company, of London.

LEGAL.

TEMPORARY STRUCTURES UNLAWFULLY ERECTED.

AT Marlborough-street Police-court, on Thursday, December 20 last, before Mr. Plowden, several builders were summoned at the instance of the London County Council for having, on or about the 27th of October, erected certain temporary stands to enable persons to view the march of the C.I.V.'s, some outside and some inside of various premises within the district of St. George, Hanover-square North, without having first obtained from the Council the necessary licences under Section 84 of the London Building Act. The offence was distinctly proved in each case, and the defendants were all fined in various amounts, with costs.

WORKMEN'S COMPENSATION ACT.

HIS Honour Judge Yate-Lee has entered the following judgment in a case heard at the Ashton County-court on the 13th inst., in which Joseph Hill, of 45, Peel-street, Dukinfield, claimed compensation for injuries alleged to have been sustained in the service of the plaintiffs, Messrs. Storrs & Co., builders, of Stalybridge. The claim was made under the Workmen's Compensation Act, 1897. His Honour, in the course of his statement, says:—The facts in this case are not in dispute. The applicant was employed at some premises where a building over 30 ft. high was being constructed, and his leg was broken by an accident. The parties agree that he is entitled to compensation at 12s. 6d. per week. The applicant, in fact, was near the gate leading on to the premises, helping to load a cart, when he was injured. In the present case we have an uncompleted building on which machinery driven by steam has been used for the purpose of the construction, which machinery was in course of removal. I think that, on the principle enunciated in Frid *v.* Fenton, I must hold that this building was one on which machinery driven by steam was still "being used for the purpose of the construction" within the meaning of the section. The result is a little startling, but I think that it would be too thin a distinction to say that an accident in the one case gave a right to compensation, and not in the other. I think that it perhaps helps one a little to arrive at this conclusion to notice that the reference to the use of scaffolding and machinery is only meant to define a class of building to which the statute applies. I am sure, moreover, that it is most desirable, if possible, to avoid thin distinctions, which the workmen, to whom this statute is of the utmost importance, do not understand. In accordance with this view of the law I have signed an award for 12s. 6d. per week, the sum agreed upon, to continue during incapacity.—*Manchester Courier.*

RECENT PATENTS:

ABSTRACTS OF PATENTED INVENTIONS.

17,794.—TREADS FOR FOOTWAYS, SUBWAYS, ROADS, &C.: *A. K. Kay.*—In the footway, which may be formed of asphalt, concrete, or similar materials, are fashioned inclined channels which end abruptly in rises, and are protected from being worn away by means of strips of metal or wood; or the footway may be constructed of wooden blocks or tiles or metal plates which are to be disposed in some such manner, the blocks being bevelled so as to form the requisite channels.

17,814.—BAND AND ORCHESTRA STANDS: *H. H. Spittal.*—The inventor devises means for reflecting the waves of sound outwards. He forms the ceiling or soffit of the roof and the floor of the stand so that they shall present respectively a parabola in vertical section, and in horizonal section a circle or polygon, whereby the sound waves will be turned into directions parallel with the axes of the curves through a focus about midway between the top of the base and the springing of the ceiling, the floor for the bandstand being raised above the base.

17,849.—WATER-HEATING APPARATUS: *T. Pattison.*—The external casing of the heater, which is after the "geyser" kind, constitutes a spiral water passage to which the supply pipe is joined; the water as it circulates is heated with a burner (gas or oil) which is put within the casing, and the water will thereupon rise to the top of the water passage, and so through sections which are made each of a plain disc and a spirally corrugated disc fastened together, and so constituting another spiral water passage. In another shape of the contrivance the water is caused to circulate upwards through the sections, its flow being accelerated by making the sections dish-shaped.

17,853.—CEMENT FOR DECORATIVE PURPOSES: *Terranova Industrie, C. A. Kapferer and Schleuning.*—For making a cement that will serve for purposes of decorative work, and for artificial stone and so on, a clay as free as possible from iron—such as pipe-clay or kaolin—is mixed with lime and with feldspar, also as free as possible from iron. To produce a cement similar to Roman cement the mixture should be burned to a temperature at which it will become clinker; for other cements that temperature should be exceeded. For the materials above-mentioned may be substituted kaolin, a silicic anhydride, such as infusorial earth or waste silica, and carbonate of soda or some other alkali; or a substance that can be used as puzzolana may be obtained by mixing lime, quartz, sand or powder, and kaolin, to which alkali, feldspar, or fluorspar may be added, and grinding the admixture after it has been burned and fused.

17,866.—TILES FOR ROOFS: *N. Daubach.*—Curved edges, stop-ribs, recesses, and interlocking dove-tailed ribs are fashioned upon the tiles, whilst their top left-hand corners are cut away for the taking of keys of mortar to be inserted between the joints of mortar lengthwise and transversely. In the horizontal mortar joints strips of wire netting or of metal are inserted.

17,953.—ELECTRICAL ARC-LAMPS: *F. Rathbone.*—The lower carbon is carried by a split iron socket which is caused to slide within the lower portion of a vertical tube attached to the enclosed arc solenoid lamp, and the socket is sustained by a shunt coil placed around the tube's upper portion. Either mercury or a flexible wire or chain is used for an electrical connexion between the socket and the tube, the lower portion of the socket having a small tapered slot through which the mercury can pass, so as to check its movements. A casing encompasses both the coil and the tube, the latter carrying a globe, upon whose upper end are mounted a collar and a screw plug that retain the upper carbon, and the joints are made air-tight.

17,964.—FIRE-PROOF WALLS, PARTITIONS, &C.: *G. Fugman.*—For building up fire-proof partitions or walls the inventor employs open-worked plates of metal which are coated on each side with plaster. In order to make the open-worked plates he cuts parallel slits in the metal sheets, and bends or corrugates the adjacent strips into opposed directions.

17,966.—AN ARTIFICIAL GRANITE: *Société Berthe & Cie.*—An artificial stone that will serve for use in making baths, bricks, tiles, columns, paving blocks, wall-linings, balustrades, statuary, &c., is formed by mixing in a cold condition certain parts of quartz, flint, glass, sand, cork, grey or white cements, dust glass and flint, the articles being built up by the hand and supported, if necessary, for a while with suitable frames. If glass is added to the compound, the goods are bathed in an acid. After the goods have become dry and set they can be polished, a good surface being ensured by the use of flint and glass having equal degrees of hardness.

18,011.—A CONTRIVANCE FOR USE WITH PLANING-MACHINES: *H. B. Stone and S. Cheeld.*—The inventors' object is to provide that the boards shall be planed to one uniform thickness. The contrivance, to be attached to the benches of planing-machines that have rotating cutters, comprises springs which press the plank upwards against the flattened surface of an angle-plate before it is passed on to the cutters. A screw serves to adjust the height of the angle-plate which is carried between guides mounted upon a bracket.

18,012.—CONSTRUCTION OF WALLS AND CEILINGS: *P. Taylor.*—On to the surface of the wall or ceiling are glued narrow strips of cardboard in such a manner as to divide it into squares, rectangles, diamonds, or other regular geometrical shapes, and between the cardboard strips are fastened, with strips or beads screwed in their places, transparent panels or sheets (of glass or other materials) which have been backed with wall-paper or with some other decorative material. The wall-paper is sized, and over its back may be pasted sheets of paper or other material. For waterproofing purposes the backing should be varnished.

18,061.—A FILTER BED FOR SEWAGE: *W. T. Scott-Moncrieff.*—The invention relates to the bacteriological treatment of sewage. The filter bed has a series of discharge channels, which are set parallel to one another and are inverted, the sewage passing through perforations in the channels into a conduit, to which lead openings wherein are fitted some fans for drawing air through the filter bed.

18,133.—VICES: *G. Hänsler.*—The adjusting screw is protected from chips, dirt, &c., with a T-shaped or overhanging head, the jaws of the vice being carried upon a supporting rail with the head; the journals of the rail-ends are to be clamped in their bearings by means of screws, so that one can adjust the vice in any inclined position. One of the jaws engages with the adjusting screw, and the other jaw may be fixed in different desired positions upon the rail with a pin.

18,142.—WINDOW SASHES: *E. V. Cooke and E. Cox.*—Above the window-head is fixed a casing which takes the mounting of the pulley of one sash, the cord being attached to the other sash without the use of nails and passed through holes in the window-head. The cord's knotted end is secured in a recess or hole cut in the sash-stile, wherein is cut a vertical groove, dove-tailed or otherwise.

18,146.—AN APPARATUS FOR OPENING AND CLOSING WINDOWS: *F. H. Cartland.*—By one variation of the contrivance a cord that is passed over a pulley-nut, turning upon a screw which carries a crank-pin, moves the window; the crank-pin is caused to slide within a slotted bracket affixed to the window. In another form the cord-pulley turns a worm which is geared with a toothed crank-rod, and in another form, adapted for a window that is hinged at its top, the pulley-nut is mounted upon the window and the slotted bracked is fastened on to the frame. In the arrangement last described a tube that projects outwards from the window serves to protect the screw from the weather.

18,160.—MOULDING OF BRICKS: *A. Swinney.*—After the clay has been extruded from the pug-mill through the cutting-frame, it falls upon pallets disposed in sections so that they can be parted asunder by a set of cams upon a shaft which is rocked by a slotted link and a crank from another shaft. When the bricks thus separated have been propelled on to carrying-off board, a crank upon the second-named shaft—which acts by means of a slotted link and rocking shaft—removes the board or table away from the pallets, whilst an increase of motion is imparted to the outer pallets by pins that project from under the pallet-boards and engage with grooves in the cams whose pitches vary in accordance with their distances from the centre.

18,164.—FIREPROOF FLOORING: *F. C. Fender.*—Skew-backs, in which are formed grooves for taking the plaster, carry the floor-blocks whose ends and sides are stepped; the blocks are fashioned with vertical side ribs, inclined side ribs, and central webs, and in the blocks are embedded plates or strips of wire gauze, perforated sheet metal, of expanded metal, similar strips or plates being also embedded in the skew-backs by which the girders' lower flanges are enclosed. For the ceiling, plaster recesses are formed in the blocks, which are made of calcined plaster. A non-conducting flake or skin of powder will form upon the blocks when they become exposed to the action of fire.

MEETINGS.

FRIDAY, JANUARY 4.

Architectural Association.—Professor Beresford Pite and Mr. R. Weir Schultz on "The Preparation of Studentship Drawings." 7.30 p.m.

Architectural Association of Ireland (Technical Demonstrations).—Mr. J. McGloughlin on "Ironwork" (at No. 47, Great Brunswick-street). 4.30 p.m.

SATURDAY, JANUARY 5.

British Institute of Certified Carpenters (Carpenters Hall).—6 p.m.

MONDAY, JANUARY 7.

Royal Institute of British Architects.—Business meeting. Election of candidates for membership. At the conclusion of the foregoing business the chairman will move the adoption of the amendments and additions in the Paper of "Suggestions for the Conduct of Architectural Competitions." The Paper as revised was printed in our last issue. At the same meeting Mr. Lewis Solomon has given notice of his intention to move the following resolution:—"That the Institute is responsible for the inferior position of architects as compared with that of other professions, and that a committee be appointed to inquire into the causes of this inferiority of status and to suggest remedies." 8 p.m.

Leeds and Yorkshire Architectural Society.—Professor Baldwin Brown on "The Old English Village Church." 6.30 p.m.

Liverpool Architectural Society.—Mr. M. H. Baillie Scott on "The Planning of Small Country Houses." 6 p.m.

TUESDAY, JANUARY 8.

Institution of Civil Engineers.—Papers to be submitted for discussion:—1. "Glasgow Bridge," by Mr. B. Hall Blyth, M.A. 2. "Railway Bridge over the Fitzroy River, at Rockhampton, Queensland," by Mr. W. J. Doak, B.E. 3. "The Niagara Falls and Clifton Steel Arch Bridge," by Mr. L. Lefferts Buck. 8 p.m.

WEDNESDAY, JANUARY 9.

Institute of Sanitary Engineers.—New Year's Presidential address.

Northern Architectural Association.—Mr. Allan Greenwell, F.G.S., on "Bitumen: Its Application in Architecture and Engineering," with lantern illustrations. 7.30 p.m.

THURSDAY, JANUARY 10.

Institution of Electrical Engineers.—Mr. W. M. Mordey on "Capacity in Alternate Current Working," and, if time permit, Mr. J. B. C. Kershaw on "The Use of Aluminium as an Electrical Conductor, with New Observations upon the Durability of Aluminium and Other Metals Under Atmospheric Exposure." 8 p.m.

Sheffield Society of Architects and Surveyors.—Mr. H. J. Potter on "The Housing of the Working Classes." 7 p.m.

FRIDAY, JANUARY 11th.

Institution of Civil Engineers (Students' Meeting).—Address by Mr. Wilfrid Airy, B.A., on "Geodesy." 8 p.m.

Architectural Association of Ireland (Technical Demonstrations).—Mr. John McGloughlin on "Constructional Work" (at No. 47, Great Brunswick-street). 4.30 p.m.

Glasgow Architectural Craftsmen's Society.—Professor Gourlay, B.Sc., on "A Tour in Germany, Switzerland, and Italy," with lime-light illustrations. 8 p.m.

SATURDAY, JANUARY 12.

Dundee Institute of Architecture.—Mr. R. S. Douglas on "Architectural Decoration—(1) as Clothing; (2) as Structural."

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered
Public Offices	Hindley U.D.C.	50*l.*, 25*l.* and 10*l.*	Jan. 18
Sewerage Scheme	Basford (Notts) R.D.C.	Not stated	Mar. 25

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c., Supplied by	Tenders to be delivered
*Electric Light Station and Destructor	Whitby U.D.C.	Clerk, Council Offices, Whitby, Yorks	Jan. 8
Shed Roofing, &c., Wilburn-street	Salford Corporation	L. C. Evans, Town Hall, Salford	do.
Road Works, Doveton-road, &c.	Croydon Town Council	Borough Road Surveyor, Town Hall, Croydon	do.
Electric Lighting Station	Nuneaton U.D.C.	J. S. Pickering, Civil Engineer, Council Offices, Nuneaton	do.
Engine House, Chimney, &c.	Pemberton (Lancs) U.D.C.	Heaton & Co., Architects, Wigan	do.
Main Sewers, &c., Dunham Massey	Bucklow (Cheshire) R.D.C.	J. McKenzie, Engineer, 7, Market-place, Altrincham	do.
Walls, Fencing, &c., Banchory, Aberdeen	.....	A. Clyne, Architect, Aberdeen	do.
Steel Tram Rails, &c.	Farnworth (Lancs) U.D.C.	W. J. Lomax, Civil Engineer, 11, Fold-street, Bolton	do.
Water Supply, Burton Leonard	Knaresborough R.D.C.	Surveyor, 44, Station-parade, Harrogate	Jan. 9
Stoneware Pipes, &c., High Wycombe	.....	T. J. Rushbrooke, Borough Surveyor, High Wycombe	do.
Road Works, &c., King-street	Mirfield (Yorks) U.D.C.	F. H. Hare, Civil Engineer, Town Hall, Mirfield	do.
Tramcar Shed, Workshops, &c., Wellington-road	Stockport Corporation	J. Atkinson, Civil Engineer, St. Petersgate, Stockport	do.
School, Heamoor	Madron (Cornwall) School Board	O. Caldwell, Architect, Penzance	do.
Well Sinking, Essex-road	Gravesend Town Council	C. S. Hatton, Court House, Gravesend	do.
Drainage Works	Fulham Borough Council	C. Botterill, Civil Engineer, Town Hall, Walham Green, S.W.	do.
Additions to Hotel, Portstewart	.....	D. Conroy, Architect, 2, Bishop-street, Londonderry	do.
Pipe Culvert, Hibson-road	Nelson (Lancs) Corporation	B. Ball, Civil Engineer, Town Hall, Nelson	do.
House, Watergate, Mawgan, Cornwall	.....	Miss Tom, Fair-street, St. Columb	Jan. 10
Sewerage Works, &c., Queen-street	Hurst (Ashton-under-Lyne) U.D.C.	S. Short, Surveyor, King-street, Hurst	do.
Timber, Bricks, and Slates	Kilkenny Guardians	K. Comerford, Union Offices, Kilkenny	do.
Stoneware Pipes	Tewkesbury Corporation	W. Ridler, Borough Surveyor, Town Hall, Tewkesbury	do.
Police Station, Cricklade	Wilts Standing Joint Committee	C. S. Adye, Surveyor, County Offices, Trowbridge	do.
Boundary Wall, &c., Nelson-street School	Dalton-in-Furness School Board	W. Butler, 68, Market-street, Dalton-in-Furness	Jan. 11
Granite and Slag	Nottingham County Council	E. P. Hooley, Shire Hall, Nottingham	do.
Sewerage Works, Weston	Bath R.D.C.	E. H. Sheppard, 3, North-parade, Bath	do.
Reservoir and Cast-iron Pipes	do.	H. Sheppard, Engineer, 5, North-parade, Bath	do.
Market, The Parade	Minehead (Somerset) U.D.C.	W. J. Tamlyn, Architect, Minehead	Jan. 12
Coach Houses and Stables, Maldon, Essex	.....	P. M. Beaumont, Architect, Maldon	do.
Alterations to 89, High-street, Maldon	Mr. C. W. Bunting	do.	do.
Sewer Diversion, Canal-street, &c.	Manchester Corporation	City Surveyor, Town Hall, Manchester	do.
Police Station, Hovingham, near Malton	.....	Surveyor, County Offices, Northallerton	do.
Bowlhouse and Shelter, Old Trafford	Stretford U.D.C	H. Royle, Surveyor, Council Offices, Old Trafford	Jan. 13
Portland Cement, Bricks, &c., Oldham	Saddleworth U.D.C.	T. S. McCallum, Civil Engineer, 52, Corporation-st., Manchester	Jan. 14
Drainage Works, &c., Victoria Park	Birkenhead Corporation	C. Brownridge, Civil Engineer, Town Hall, Birkenhead	do.
Building Work, Victoria Park, Tranmere	do.	do.	do.
Transformer Chambers	Leeds Corporation	H. Dickinson, 1, Whitehall-road, Leeds	do.
Cottage Hospital, Lerwick, Shetland	.....	W. A. Baird Laing, Architect, 13, George-street, Edinburgh	do.
Retort House Buildings, &c.	Sutton Gas Company	G. M. Robins, Engineer, Gas Offices, Sutton	do.
Road Metal	Rugby U.D.C.	D. G. Macdonald, Civil Engineer, Rugby	do.
Road Works, &c., Gillingate	Kendal Corporation	R. H. Lucas, Civil Engineer, Town Hall, Kendal	do.
House, &c., Salterhebble	Halifax Corporation	J. Lord, Civil Engineer, Town Hall, Halifax	do.
*Chimney Shaft	Derby Corporation	A. Eaton, Architect, 6, St. James's-street, Derby	do.
*Sewerage Works	Lewisham Borough Council	Surveyor's Department, Town Hall, Catford, S.E.	Jan. 15
*Kerbing and Tarpaving	do.	do.	do.
Police Station, Court House, &c., Keswick	.....	G. D. Oliver, Architect, Carlisle	do.
Schools, St. Peter's-square, Wolverhampton	.....	F. T. Beck, Architect, Darlington-street, Wolverhampton	do.
Police Station, Alderley Edge, Cheshire	.....	H. Beswick, Architect, Newgate-street, Chester	do.
*Alterations to Ordnance Survey Offices, Southampton	Office of Works	Survey Office, Southampton	Jan. 17
Pipe Sewers, &c.	Easingwold (Yorks) R.D.C.	Fairbank & Son, Civil Engineers, 13, Lendal, York	do.
Additions to Workhouse	Andover Guardians	J. Wormald, Surveyor, Andover	do.
Buildings, &c., for Refuse Destructor	Walker (Northd.) U.D.C.	Handcock & Dykes, Engineers, 1, Victoria-street, S.W.	Jan. 19
*Laying-out, &c., of Cemetery at Upminster	Romford R.D.C.	E. M. Whitaker, Architect, 1, Gresham-buildings, Basinghall-st.	Jan. 21
*Buildings for a Branch Public Library	Hornsey U.D.C.	Surveyor, Council Office, Southwood-lane, Highgate, N.	do.
*Sessions Court, &c.	E. Sussex County Council	County Surveyor, County Hall, Lewes	Jan. 25
*Post Office at Coventry	Office of Works	Postmaster, Coventry	do.
*Coast Guard Buildings at Dungeness	Admiralty	See Advertisement	do.
*Coast Guard Buildings at St. Mawes, near Falmouth	do.	do.	do.
*Sewerage Works	Dartford R.D.C.	G. H. Talt, Engineer, Lonfield-street, Dartford	Jan. 28
*Old Tramway Rails	Croydon County Council	Borough Road Surveyor's Office, Town Hall, Croydon	do.
*School	Metropolitan Asylums Board	Newman & Newman, Architects, 31, Tooley-street, S.E.	Jan. 30
*Isolation Hospital near Burgess Hill, Sussex	Cuckfield R.D.C.	G. T. Hine, Architect, 35, Parliament-street, Westminster, S.W.	Feb. 4
*Water Tower, &c.	Islington Borough Council	A. Hessell Tiltman, 51, Russell-square, W.C.	Feb. 12
Additions to Schools, Mitre-street, Burnley	.....	Hitchon & Pritchard, 46, Manchester-road, Burnley	No date
*Swimming Baths, &c.	Holborn Corporation	See Advertisement	do.
Building Work, Jarratt-street, Hull	.....	Freeman & Co., Architects, 11, Carr-lane, Hull	do.
Gun Store & Additions to Headquarters, Manchester	.....	J. Eaton, Sons & Co., Architects, Ashton-under-Lyne	do.
Warehouse, Radford-road, Nottingham	Mr. P. Mathiesen	Sands & Walker, Architects, Angel-row, Nottingham	do.
Eight Houses, Bramley, Leeds	Mr. J. W. Reeder	F. W. Rhodes, Architect, Upper Wortley, Leeds	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Assistant	E. Sussex County Council	75*l.* per annum	Jan. 12
*Clerk of Works	Chelsea Guardians	3*l.* 1*s.* per week	No date

Those marked with an asterisk (*) are advertised in this Number. *Competitions, p.* —. *Contracts, pp.* iv. vi. viii. x. & xix. *Public Appointments, pp.* xxvii. & xxx.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

December 15.—By JENKINS & SONS (on premises).
Lewisham.—96, Tressillian-rd., u.t. 72 yrs., g.r. 10*l.* 10s. £700
December 19.—By W. DEW & SON (at Denbigh).
Llanrhaiadr-yn-Cinrnerch, &c., Denbigh.—Pennant Isaf Farm, 390 a. 0 r. 12 p., f..... 2,300
The Hafod Lom Estate, 1,375 a. 3 r. 3 p., f. .. 6,500
December 20.—By HENRY HENDRIKS (at Birmingham).
Sparkbrook, Worcester.—250 and 252, Stratford-rd., u.t. 83 yrs., g.r. 15*l.*, r. 60*l.* 600
King's Norton, Warwick.—Northfield-rd., f.g.r. 29*l.*, reversion in 98 and 97 yrs..... 790
By JENKINS & SONS (at Lewisham).
Lewisham.—57, Loampit-vale, f., e.r., 110*l.* 1,100
Deptford.—28 and 30, Deptford Bridge, u.t. 64 yrs., g.r. 32*l.*, r. 100*l.* 800
New Cross.—16 and 18, Amersham-rd., u.t. 27 yrs., g.r. 8*l.*, r. 68*l.* 545

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.	
Hard Stocks	1 16 0	per 1,000 alongside, in river.
Rough Stocks and Grizzles	1 12 0	,, ,, ,,
Smooth Bright Facing Stocks..	2 18 0	,, ,, ,,
Shippers	2 6 0	,, ,, ,,
Flettons.....	1 10 6	,, at railway depôt.
Red Wire Cuts ..	1 15 6	,, ,, ,,
Best Fareham Red	3 11 6	,, ,, ,,
Best Red pressed Ruabon Facing.	5 5 0	,, ,, ,,
Best Blue Pressed Staffordshire ..	4 7 0	,, ,, ,,
Do., Bullnose ...	4 12 0	,, ,, ,,
Best Stourbridge Fire Bricks	4 4 6	,, ,, ,,
GLAZED BRICKS.		
Best White and Ivory Glazed Stretchers.....	13 0 0	,, ,, ,,
Headers	12 0 0	,, ,, ,,
Quoins, Bullnose, and Flats	17 0 0	,, ,, ,,
Double Stretchers	19 0 0	,, ,, ,,
Double Headers..	16 0 0	,, ,, ,,
One Side and two Ends	19 0 0	,, ,, ,,
Two Sides and one End	20 0 0	,, ,, ,,
Splays, Chamfered, Squints	20 0 0	,, ,, ,,
Best Dipped Salt Glazed Stretchers and Headers ..	12 0 0	,, ,, ,,
Quoins, Bullnose, and Flats	14 0 0	,, ,, ,,
Double Stretchers	15 0 0	,, ,, ,,
Double Headers..	14 0 0	,, ,, ,,
One Side and two Ends	15 0 0	,, ,, ,,
Two Sides and one End	15 0 0	,, ,, ,,
Splays, Chamfered, Squints	14 0 0	,, ,, ,,
Seconds Quality White and Dipped Salt Glazed	2 0 0	,, less than best.

	s. d.	
Thames and Pit Sand	8 0	per yard, delivered.
Thames Ballast	6 9	,, ,,
Best Portland Cement	38 0	per ton ,,
Best Ground Blue Lias Lime..	24 6	,, ,,

NOTE.—The cement and lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 12s. 6d. per yard, delivered.
Stourbridge Fire-clay in sacks, 22s. 6d. per ton at rly. dpt.

STONE.

	s. d.	
Ancaster in blocks	2 0	per ft. cube, deld. rly. depôt.
Bath ,, ...	1 7	,, ,,
Farleigh Down Bath ..	1 8	,, ,,
Beer in blocks	1 6½	,, ,,
Grinshill ,, ...	1 10	,, ,,
Brown Portland in blocks	2 2	,, ,,
Darley Dale in blocks..	2 1½	,, ,,
Red Corsehill ,,	2 5	,, ,,
Red Mansfield ,,	2 4½	,, ,,
Hard York in blocks ..	2 10	,, ,,
Hard York 6 in. sawn both sides landings, to sizes (under 40 ft. sup.)	2 8	per ft. super. at rly. depôt.
,, ,, 6 in. Rubbed Ditto..	3 0	,, ,,
,, ,, 3 in. sawn both sides slabs (random sizes)	1 3	,, ,,
,, ,, 3 in. self-faced Ditto	0 9½	,, ,,

SLATES.

in. in.	£ s. d.	
20×10 best blue Bangor..	11 5 0	per 1000 of 1200 at ry. dep.
,, best seconds ,,	10 15 0	,, ,,
16× 8 best ,,	6 2 6	,, ,,
20×10 best blue Portmadoc ...	10 18 0	,, ,,
16× 8 best blue Portmadoc	6 0 0	,, ,,
20×10 best Eureka unfading green.....	11 2 6	,, ,,
16× 8 ,, ,,	6 15 0	,, ,,
20×10 Permanent green	10 0 0	,, ,,
16× 8 ,, ,,	5 12 6	,, ,,

PRICES CURRENT (*Continued*).

TILES.

	s. d.	
Best plain red roofing tiles..	41 6	per 1,000 at rly. depôt.
Hip and valley tiles....	3 7	per doz. ,, ,,
Best Broseley tiles	48 6	per 1,000 ,, ,,
Hip and valley tiles....	4 0	per doz. ,, ,,
Best Ruabon Red, brown or brindled Do. (Edwards)	57 6	per 1,000 ,, ,,
Do. ornamental Do.	60 0	,, ,, ,,
Hip tiles.....	4 0	per doz. ,, ,,
Valley tiles.....	3 9	,, ,, ,,
Best Red or Mottled Staffordshire Do. (Peakes) .	50 9	per 1,000 ,, ,,
Hip tiles	4 1	per doz. ,, ,,
Valley tiles.....	3 8	,, ,, ,,

WOOD.

BUILDING WOOD.—YELLOW.

	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	16 10 0	18 0 0
Deals: best 3 by 9	14 10 0	15 10 0
Battens: best 2½ in. by 7 in. and 8 in. and 3 in. by 7 in. and 8 in.....	12 10 0	13 10 0
Battens: best 2½ by 6 and 3 by 6 ..	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less than best
Battens: seconds.....	0 10 0	,, ,, ,,
	At per load of 50 ft.	
Fir timber: Best middling Danzig or Memel (average specification)	4 10 0	5 0 0
Seconds	4 5 0	4 10 0
Small timber (8 in. to 10 in.)	3 12 6	3 15 0
Swedish balks.....	2 15 0	3 0 0
Pitch pine timber (35 ft. average)..	4 0 0	4 10 0

JOINERS' WOOD.

	At per standard.	
White Sea: First yellow deals, 3 in. by 11 in.....	27 10 0	28 10 0
3 in. by 9 in.	24 0 0	25 0 0
Battens, 2½ in. and 3 in. by 7 in.	20 0 0	21 0 0
Second yellow deals, 3 in. by 11 in.	22 10 0	24 0 0
,, ,, 3 in. by 9 in.	20 0 0	21 0 0
Battens, 2½ in. and 3 in. by 7 in.	16 10 0	18 0 0
Third yellow deals, 3 in. by 11 in. and 9 in.	16 10 0	18 0 0
Battens, 2½ in. and 3 in. by 7 in.	13 10 0	14 10 0
Petersburg: first yellow deals, 3 in. by 11 in.	25 0 0	26 0 0
Do. 3 in. by 9 in.	22 0 0	23 0 0
Battens.....	16 10 0	17 10 0
Second yellow deals, 3 in. by 11 in.....	18 10 0	20 0 0
Do. 3 in. by 9 in.	17 0 0	18 0 0
Battens.....	14 0 0	14 10 0
Third yellow deals, 3 in. by 11 in.....	15 0 0	16 10 0
Do. 3 in. by 9 in.	14 0 0	14 10 0
Battens.....	12 10 0	13 10 0
White Sea and Petersburg:—		
First white deals, 3 in. by 11 in..	15 10 0	16 10 0
,, ,, 3 in. by 9 in. ..	14 0 0	15 0 0
Battens.....	12 10 0	13 10 0
Second white deals 3 in. by 11 in.	14 0 0	15 0 0
,, ,, 3 in. by 9 in.	13 0 0	14 0 0
,, ,, battens	11 0 0	12 0 0
Pitch pine: deals.....	16 0 0	18 0 0
Under 2 in. thick extra	0 10 0	1 0 0
Yellow Pine—		
First, regular sizes	30 0 0	33 0 0
Broads (12 in. and up)	2 0 0	more.
Oddments	22 0 0	24 0 0
Seconds, regular sizes	24 10 0	26 10 0
Yellow Pine Oddments	20 0 0	22 0 0
Kauri Pine—		
Planks, per ft. cube	9 3 6	0 4 6
Danzig and Stettin Oak Logs—		
Large, per ft. cube	0 2 6	0 2 8
Small ,, ,, ...	0 2 4	0 2 7
Wainscot Oak Logs, per ft. cube ..	0 5 0	0 5 6
Dry Wainscot Oak, per ft. sup. as inch	0 0 8	0 9
⅞ in. do. do.	0 0 7	- - -
Dry Mahogany—		
Honduras, Tabasco, per ft. sup. as inch	0 0 9	0 0 11
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 0
Dry Walnut, American, per ft. sup. as inch.....	0 0 10	0 1 0
Teak, per load	16 0 0	20 0 0
American Whitewood Planks—		
Per ft. cube.....	0 2 3	0 3 0

JOISTS, GIRDERS, &c.

	In London, or delivered to Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	8 7 6	9 7 6
Compound Girders ,, ,,	10 5 0	11 10 0
Angles, Tees and Channels, ordinary sections	11 2 6	13 2 6
Flitch Plates	11 0 0	11 15 0
Cast Iron Columns and Stanchions, including ordinary patterns	8 15 0	10 10 0

METALS.

	Per ton, in London. £ s. d.	£ s. d.
IRON.—		
Common Bars.....	9 15 0	- - -
Staffordshire Crown Bars, good merchant quality	10 5 0	10 10 0
Staffordshire "Marked Bars" ..	12 0 0	- - -
Mild Steel Bars.....	10 10 0	11 0 0
Hoop Iron, basis price.....	10 10 0	11 0 0
,, ,, galvanised	16 10 0	- - -
(* And upwards, according to size and gauge.)		
Sheet Iron, Black.—		
Ordinary sizes to 20 g.....	11 0 0	- - -
,, ,, to 24 g.....	12 0 0	- - -
,, ,, to 26 g.....	13 10 0	- - -

PRICES CURRENT (*Continued*).

METALS.

	Per ton, in London. £ s. d.	£ s. d.
IRON.—		
Sheet Iron, Galvanised, flat, ordinary quality.—		
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.....	13 5 0	- - -
,, ,, 22 g. and 24 g.	14 5 0	- - -
,, ,, 26 g.....	16 0 0	- - -
Sheet Iron, galvanised, flat, best quality.—		
Ordinary sizes to 20 g.	17 10 0	- - -
,, ,, 22 g. and 24 g.	18 0 0	- - -
,, ,, 26 g.	19 10 0	- - -
Galvanised Corrugated Sheets.—		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	13 10 0	- - -
,, ,, 22 g. and 24 g.	14 0 0	- - -
Cut nails, 3 in. to 6 in.....	11 10 0	- - -
(Under 3 in. usual trade extras.)		
LEAD—Sheet, English, 3 lbs. & up.	19 0 0	- - -
Pipe in coils	19 10 0	- - -
Soil Pipe..	22 10 0	- - -
ZINC—Sheet—		
Vieill6 Montagne ..... ton	26 0 0	- - -
Silesian.....	25 10 0	- - -
COPPER—		
Strong Sheet..... per lb.	0 1 1	- - -
Thin ..... ,,	0 1 3	- - -
Copper nails ..... ,,	0 1 3	- - -
BRASS—		
Strong Sheet..... ,,	0 0 11	- - -
Thin ,, ... ,,	0 1 1	- - -
TIN—English Ingots ..... ,,	0 1 4½	- - -
SOLDER—Plumbers' ..... ,,	0 0 9	- - -
Tinmen's ..... ,,	0 0 9½	- - -
Blowpipe ..... ,,	0 0 10½	- - -

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds.....	2½d. per ft. delivered.
,, fourths	2¾d. ,, ,,
21 oz. thirds	3½d. ,, ,,
,, ,, fourths.....	3d. ,, ,,
26 oz. thirds	4½d. ,, ,,
,, ,, fourths	4d. ,, ,,
32 oz. thirds	5½d. ,, ,,
,, ,, fourths.....	5d. ,, ,,
Fluted sheet, 15 oz.	3½d. ,, ,,
,, ,, 21 ,, ...	4½d. ,, ,,
½ Hartley's Rolled Plate.....	3d. ,, ,,
⅜ ,, ,, ,, ...	3½d. ,, ,,
½ ,, ,, ,, ...	4d. ,, ,,

OILS, &c.

	£ s. d.	
Raw Linseed Oil in pipes.....	0 2 10	per gallon
,, ,, ,, in barrels	0 2 11	,,
,, ,, ,, in drums	0 3 1	,,
Boiled ,, ,, in pipes.....	0 3 1	,,
,, ,, ,, in barrels	0 3 2	,,
,, ,, ,, in drums	0 3 4	,,
Turpentine, in barrels	0 2 8	,,
,, in drums.....	0 2 10	,,
Genuine Ground English White Lead ...per ton	27 0 0	
Red Lead, Dry..... ,,	24 10 0	
Best Linseed Oil Putty..... ...per cwt.	0 9 0	
Stockholm Tar ..... per barrel	1 10 0	

VARNISHES, &c.

	per gallon £ s. d
Fine Elastic Copal Varnish for outside work ..	0 16 6
Best Elastic Copal Varnish for outside work ..	1 0 0
Best Elastic Carriage Varnish for outside work	0 16 6
Best Hard Oak Varnish for inside work.....	0 10 6
Best Extra Hard Church Oak Varnish for inside work	0 10 6
Fine Hard Copal Varnish for inside work	0 16 0
Best Hard Copal Varnish for inside work	1 0 0
Best Hard Carriage Varnish for inside work....	0 16 0
Extra Pale Paper Varnish	0 12 0
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 9 0
Berlin Black	0 15 0
Knotting	0 10 0
Best French and Brush Polish	0 10 0

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, letters, and papers read at meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursdays.* N.B.—We cannot publish tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of tenders accepted unless the amount of the tender is given, nor any list in which the lowest tender is under £100, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

BROMLEY (Kent).—For erection of house, Garden-road, for Mr. H. Weeks. Mr. James Pamphilon, architect, 21, Finsbury-pavement, E.C. Quantities by architect:—

Larke & Sons.....	£2,164	T. D. Graty.....	£1,895
F. P. Duthoit.....	1,900	Crossley & Son	1,845

[*See also next page.*

DEVONPORT.—For alterations to No. 22, Fore-street, for Mr. C. Burt. Mr. E. M. Leest, architect, Public Hall Chambers, Devonport :—

Healy & Son	£138 4	S. Perkins	£119 14
W. J. Oliver	133 10	Jenkin & Sont	110 0
Smith & Son	126 15	[All of Devonport.]	

HENDON.—For portable shed for fire-escape, Hendon Station, for the Hendon Urban District Council. Mr. S. Slater Grimley, Engineer and Surveyor :—

W. Pearce	£148 0 0	Smith & Co....	£106 12 9
W. Cooper, Ltd.	126 0 0	Humphreys, Ltd.,	81 0 0
W. A. Pryor ..	115 0 0	Gardner & Hazell,	79 15 0
Mitson & Co...	110 0 0	Smith & Co., Acre-lane, Brixton* ..	75 0 0
Fredk. King ..	107 5 0		

HENDON.—For 12 in. sewer, Mill Hill-road, for the Hendon Urban District Council. Mr. S. Slater Grimley, Engineer and Surveyor :—

Bentham & Co.	£745	R. Ballard, Ltd., Child's Hill, N.W.	£497
Merredew & Co.....	595	Geo. Bell	462
Killingback & Co....	577		

LEICESTER.—Extension of warehouse in Newarke-street, for Messrs. T. H. Downing & Co Messrs. Tait & Herbert, architects and surveyors, Friar-lane, Leicester :—

Contract No. 1.

Richardson & Son ..	£3,167	J. O. Jewsbury	£2,905
H. T. & W. Chambers	2,949	Johnson & Son	2,855
H. Bland	2,910	Herbert & Sons*	2,830

Contract No. 2.

Cort, Paul, & Cormick	£584 0 0	Russell & Sons	£583 19 4
		Gimson & Co.*	572 12 6

Contract No. 3.

J. Getliffe	£197 4	Rowlett	£162 0
Norman & Underwood	169 10	Wm. Treer*	155 0

Contract No. 4.

Major	£141 16 3	Mawbey & Son .	£120 0 0
A. Shaw	130 19 9	Geo. H. Barker*	102 0 0
W. A. Bauton..	123 17 10		

[All of Leicester]

LONDON.—For alterations at the Hope and Anchor public-house, Camden Town, N.W. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, E.C. Quantities supplied :—

Courtney & Fairbairn	£1,200	Osborn & Sons	£1,060
Antill & Co.....	1,185	Sheffield Bros.*	1,054

LONDON.—For erecting Nos. 178 and 180, St. John's-street, E.C. Mr. W. A. Aickman, architect, 34, Gresham-street, E.C. Quantities by Mr. L. Jacob :—

Rudd & Son	£5,388	Ashby & Horner....	£4,700
Dore Bros.	5,255	Thos. Rider & Son	4,598
E. Lawrance & Sons	4,958	J. W. Falkner & Sons*.....	4,349
Staines & Son	4,857		

NEWTON ABBOT.—For the erection of boardroom and offices; additions, &c., to present room, for the Guardians. Mr. Samuel Segar, architect, Union-street, Newton Abbot. Quantities by architect :—

W. Brenton ..	£7,560 0 0!	W. A. Goss ..	£4,825 0 0
Mitchell & Son	6,464 11 0	L Bearne, Newton Abbot*	4,672 19 6!
W. Gibson ..	5,620 0 0		
Parker Bros.	5,260 0 0		
F.A.A. Stacey	5,169 0 0		

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 28s. per annum (52 numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 26s. per annum. Remittances (payable to DOUGLAS FOURDRINIER) should be addressed to the publisher of "THE BUILDER," Catherine-street, W.C.

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PUBLISHER'S NOTICES.

Telegraphic Address, "THE BUILDER, LONDON."

THE INDEX (with TITLE PAGE) for VOLUME LXXIX (July to December, 1900) will be given as a supplement with our next issue.

CLOTH CASES for Binding the Numbers are now ready, price 2s. 6d. each; also

READING CASES (Cloth), with Strings, price 9d. each.

THE SEVENTY-NINTH VOLUME of "The Builder" (bound), price Twelve Shillings and Sixpence, will be ready on 23rd inst.

SUBSCRIBERS' VOLUMES, on being sent to the Office, will be bound at a cost of 3s. 6d. each.

CHARGES FOR ADVERTISEMENTS.

COMPETITIONS, CONTRACTS, ALL NOTICES ISSUED BY CORPORATE BODIES, COUNTY AND OTHER COUNCILS, PROSPECTUSES OF PUBLIC COMPANIES, SALES BY TENDER, LEGAL ANNOUNCEMENTS, &c. &c.

Six lines, or under.....6s. 0d.
Each additional line.....1s. 0d.

SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS, TRADE AND GENERAL ADVERTISEMENTS.

Six lines (about fifty words) or under .....4s. 6d.
Each additional line (about ten words).....0s 6d.

Terms for series of Trade advertisements, and for front page, and other special positions, on application to the Publisher.

SITUATIONS WANTED (Single-handed—Labour only).

FOUR lines (about thirty words) or under .....2s. 6d.
Each additional line (about ten words).....0s. 6d.

PREPAYMENT IS ABSOLUTELY NECESSARY.

*** Stamps *must not* be sent, but all sums should be remitted by Postal Orders, payable to DOUGLAS FOURDRINIER, and addressed to the Publisher of "THE BUILDER," Catherine-street, W.C.

Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST ONE p.m. on that day. Those intended for the Outside Wrapper should be in by TWELVE noon on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c. left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

PERSONS Advertising in "The Builder" may have *Replies addressed to the Office,* Catherine-street, Covent Garden, W.C. *free of charge.* Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

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SLATER and TILER.

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And every other description of Slates, except American, Ready for immediate delivery to any Railway Station.

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ALWAYS IN STOCK.

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BETHNAL GREEN SLATE WORKS
BETHNAL GREEN, LONDON, E.

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BATH.
FOR ALL THE PROVED KINDS OF
BATH STONE.
FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

HAM HILL STONE.
DOULTING STONE.
The Ham Hill and Doulting Stone Co.
(incorporating the Ham Hill Stone Co. and C. Trask & Son, The Doulting Stone Co.)
Chief Office :—Norton, Stoke-under-Ham, Somerset.
London Agent :—Mr. E. A. Williams.
16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co.

SPRAGUE & CO.'S, Ltd.,
INK-PHOTO PROCESS,
4 & 5, East Harding-street,
Fetter-Lane, E.C.

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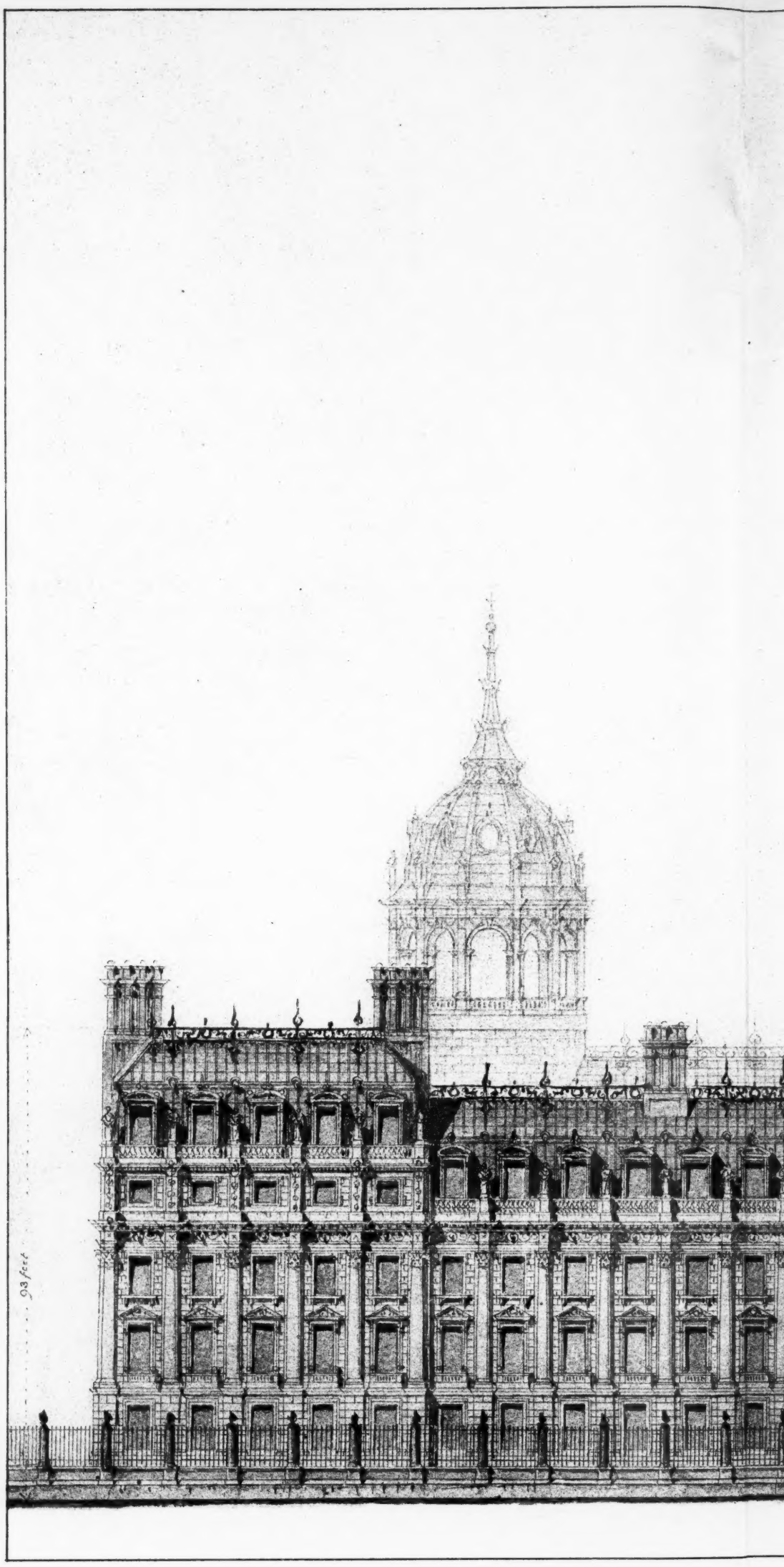
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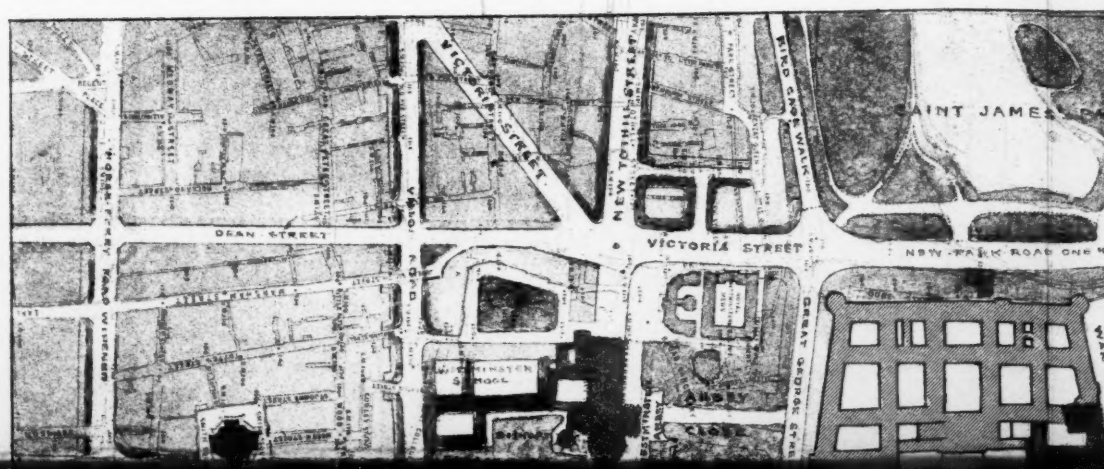
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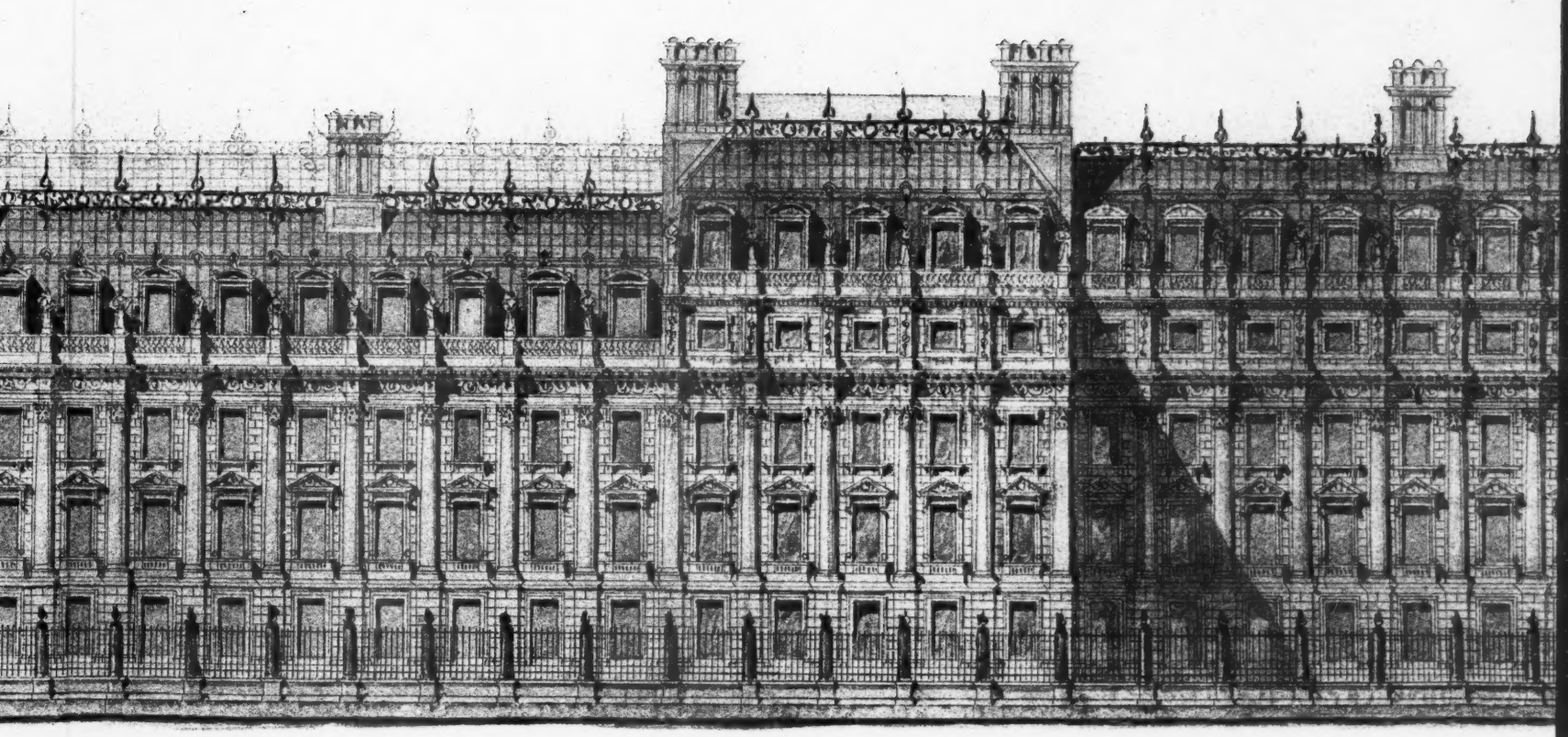

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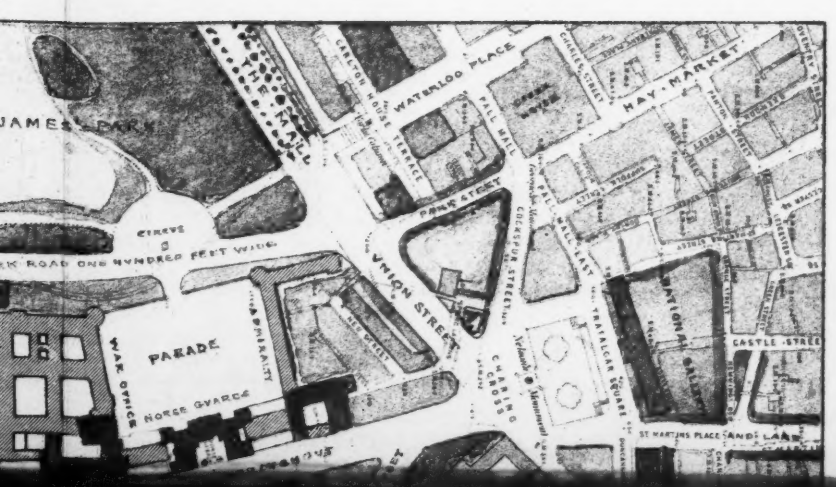

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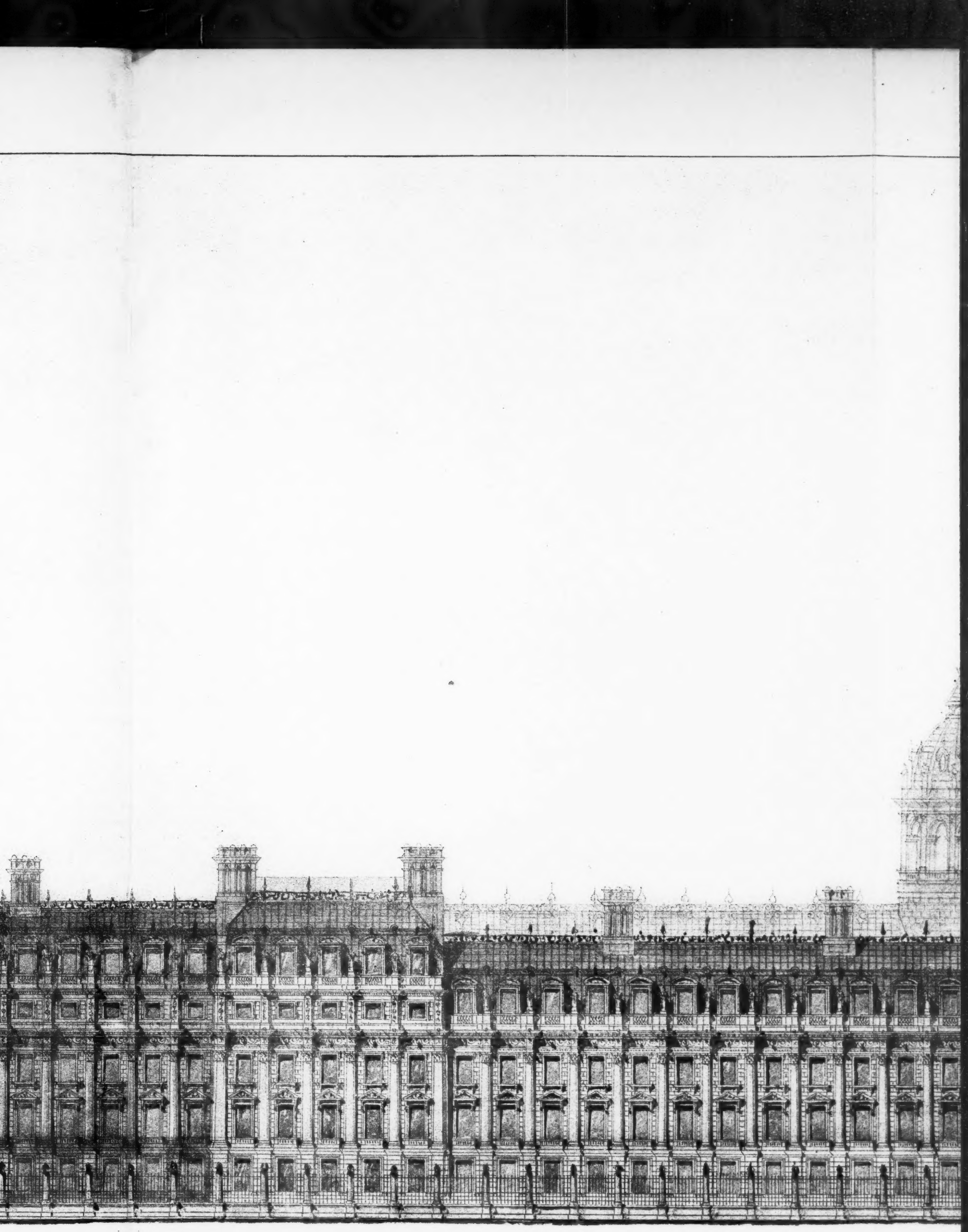

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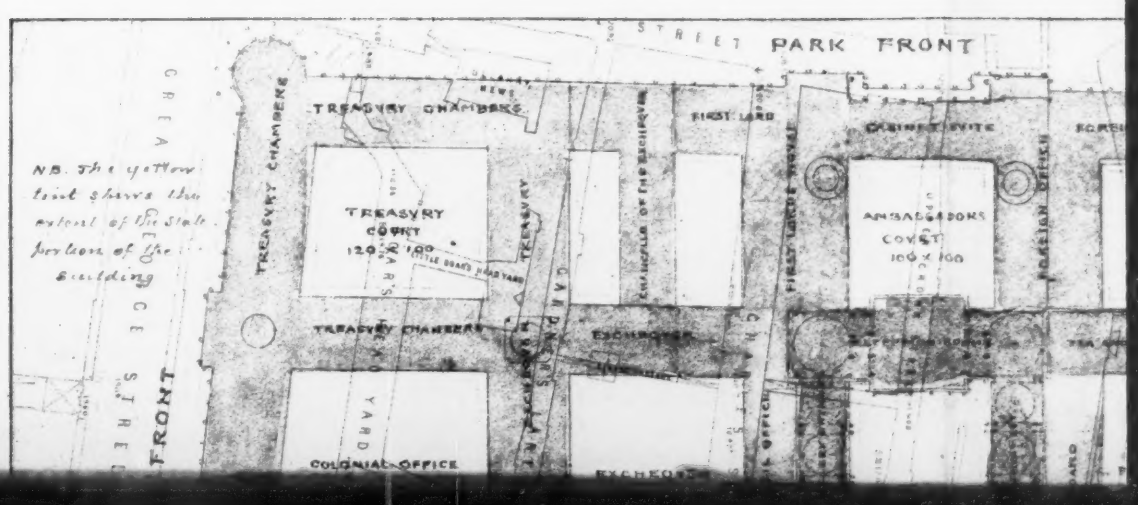

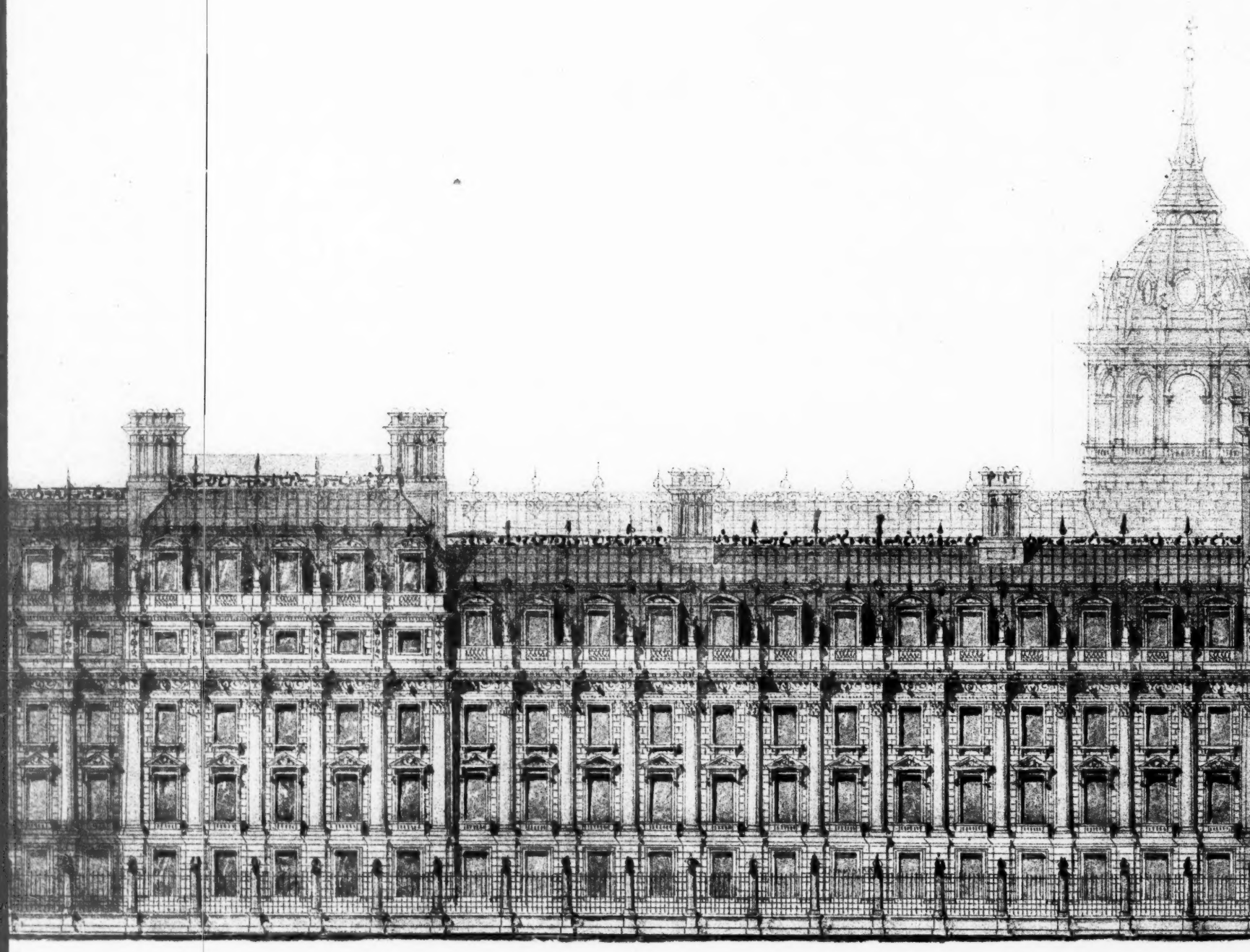

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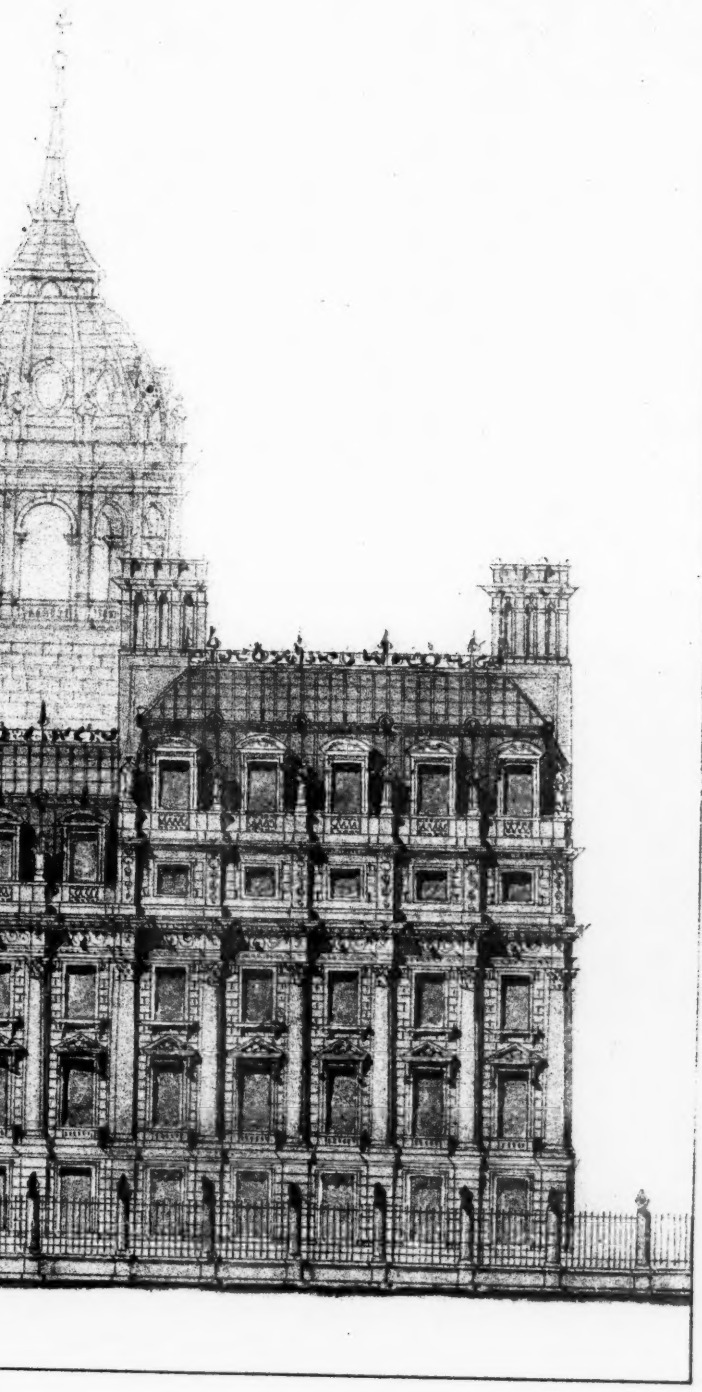

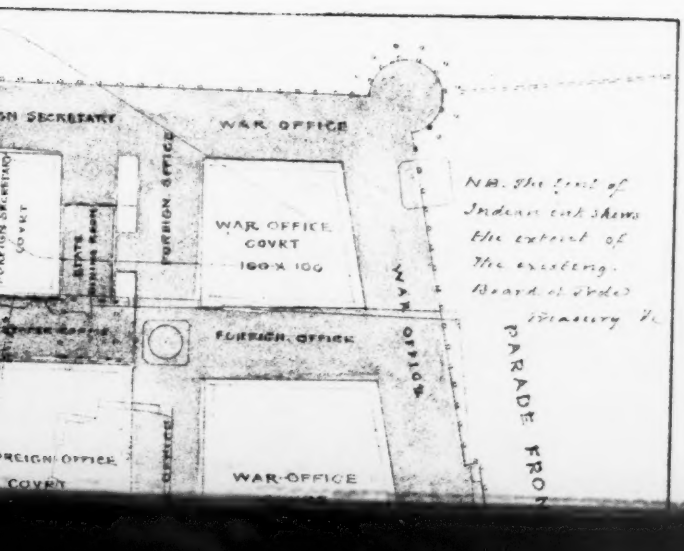

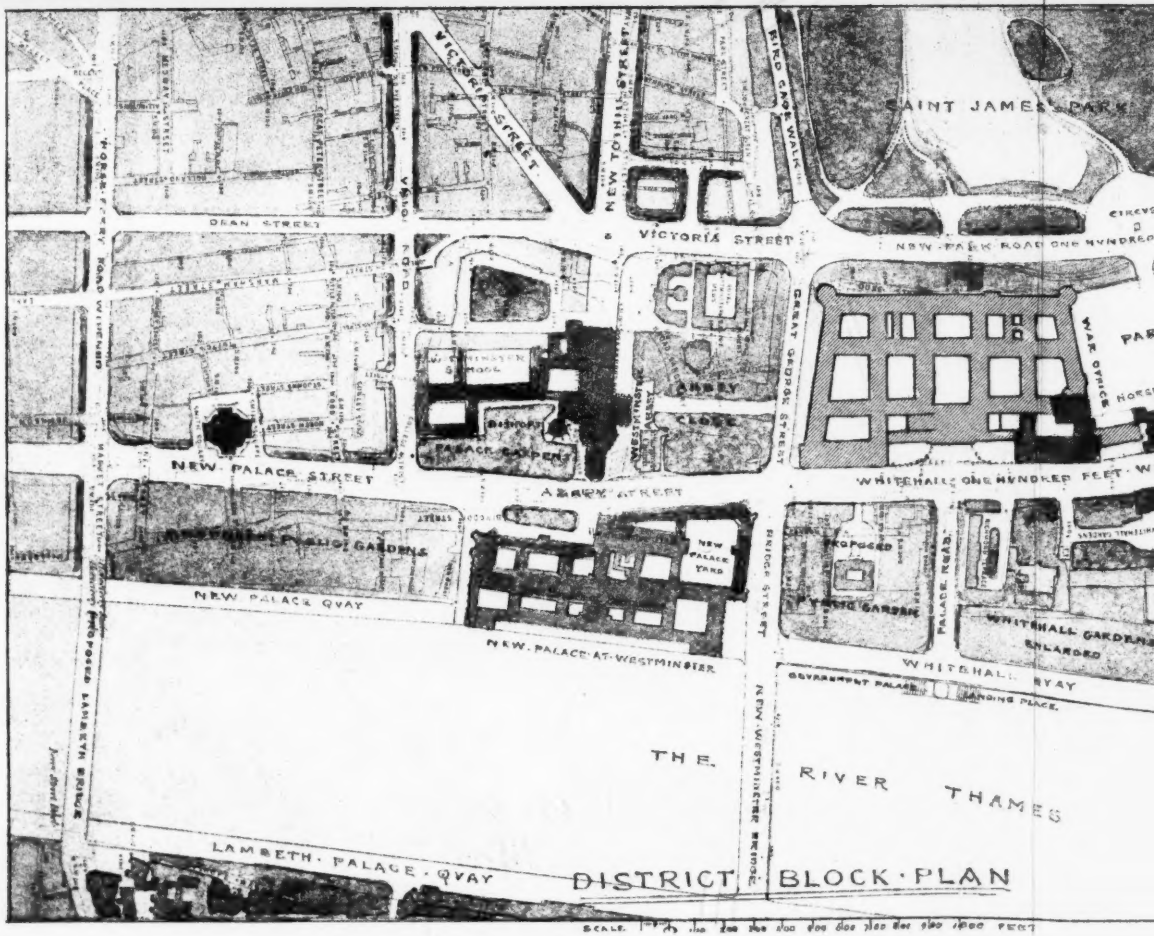
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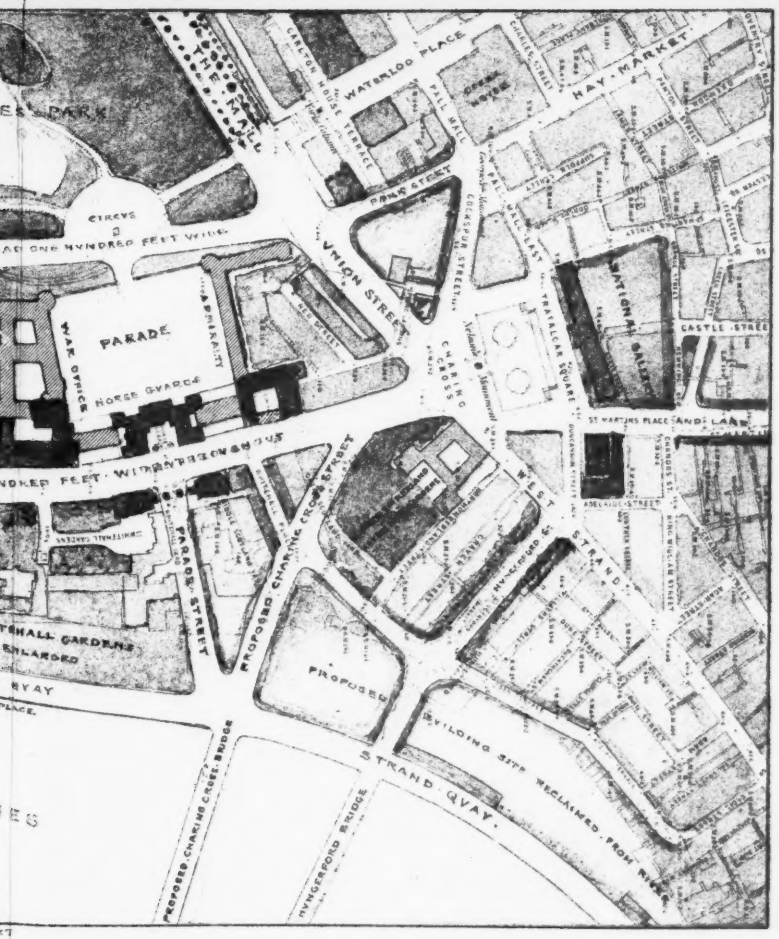

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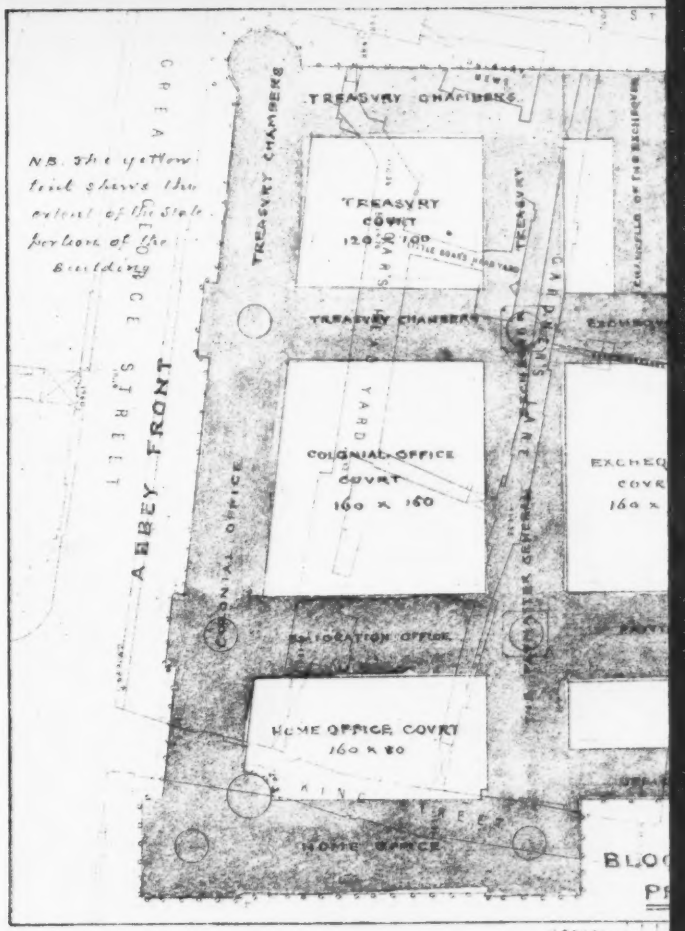

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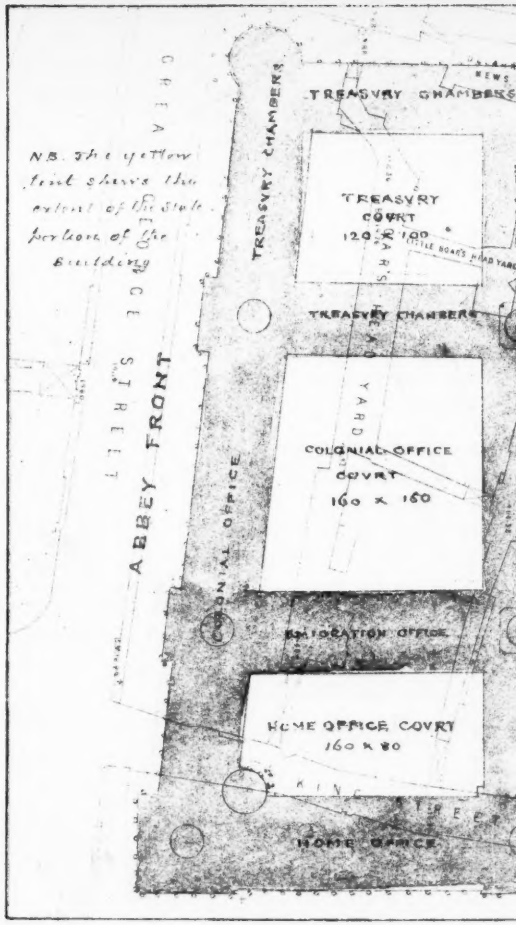

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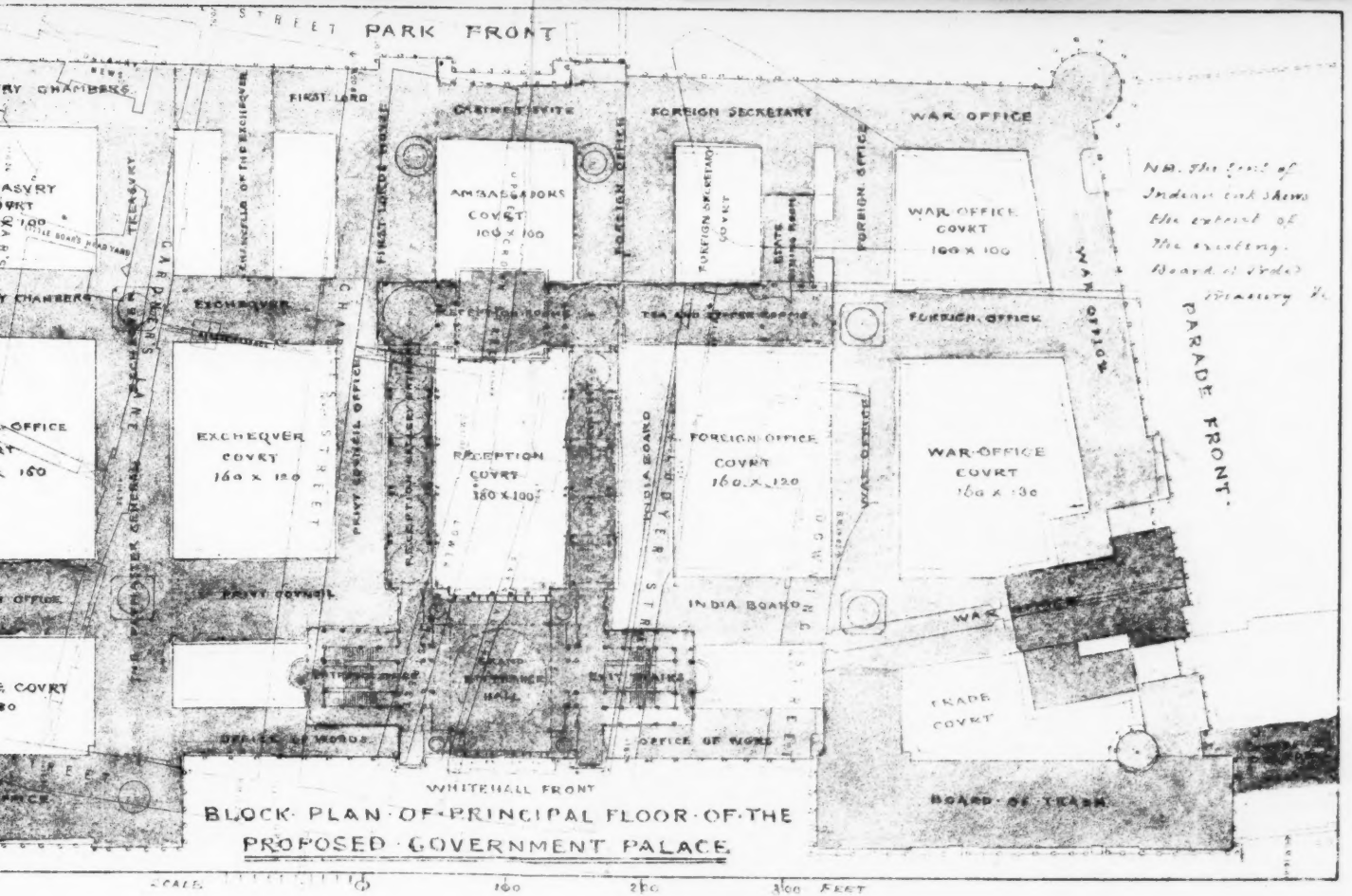

N.B. The front of Indian ink shews the extent of the existing Board of Trade

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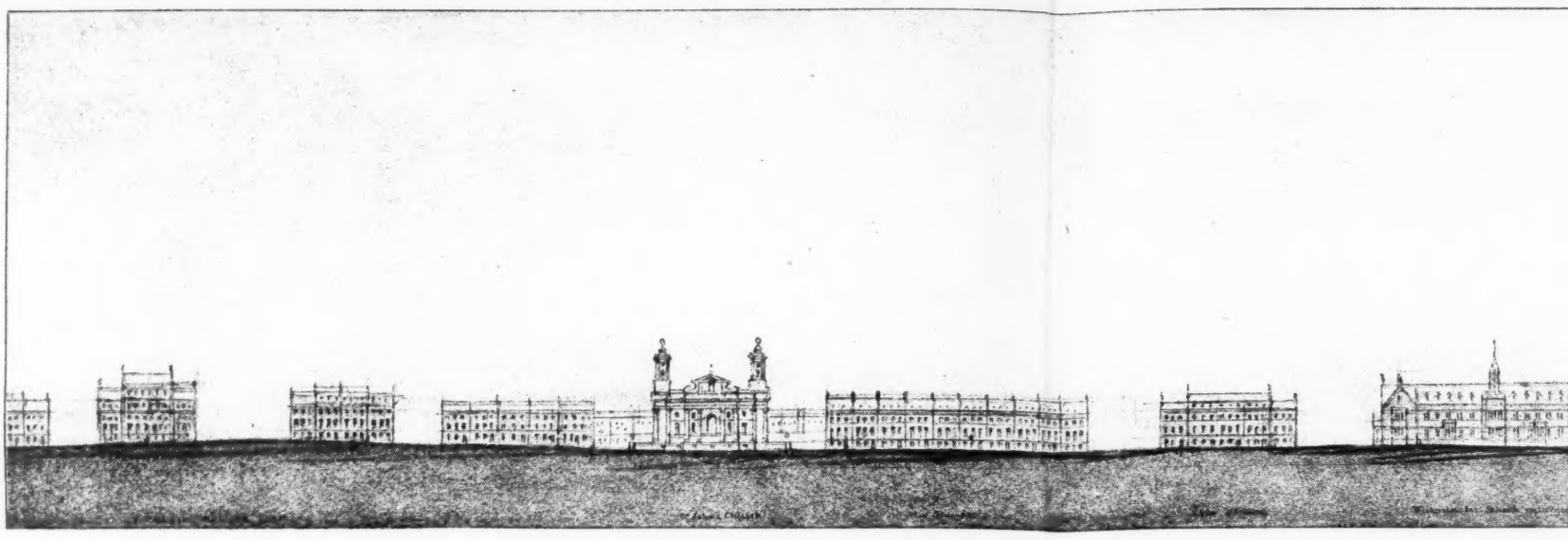
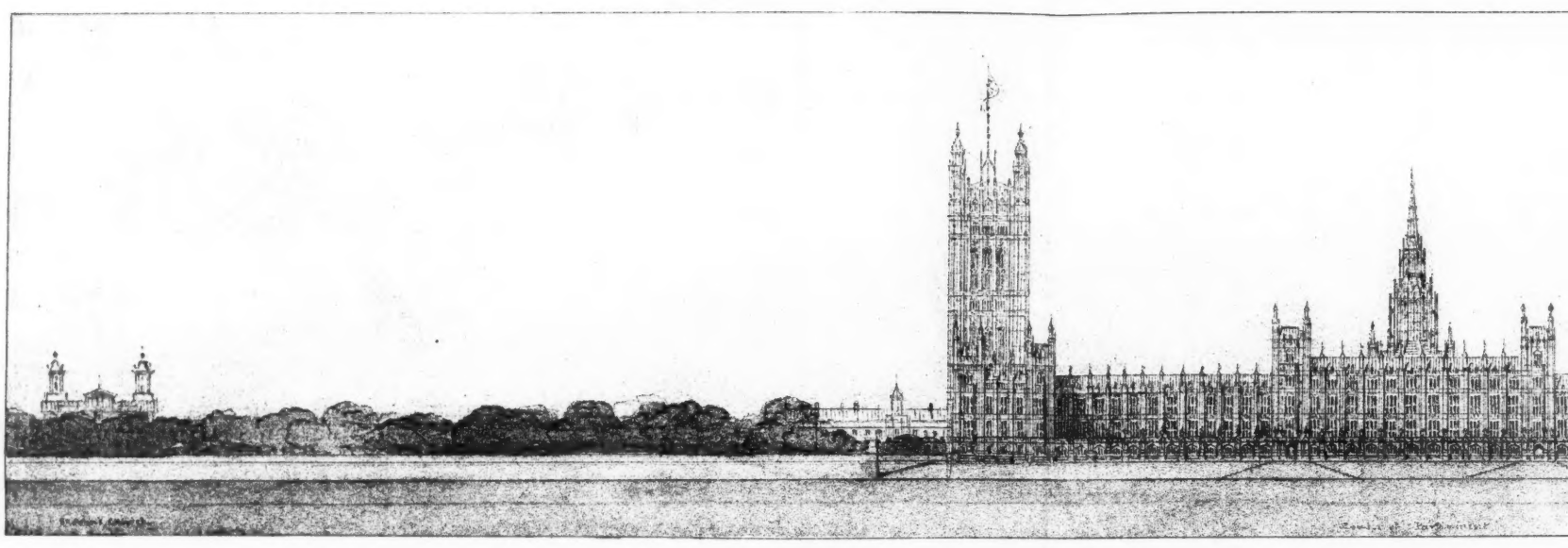
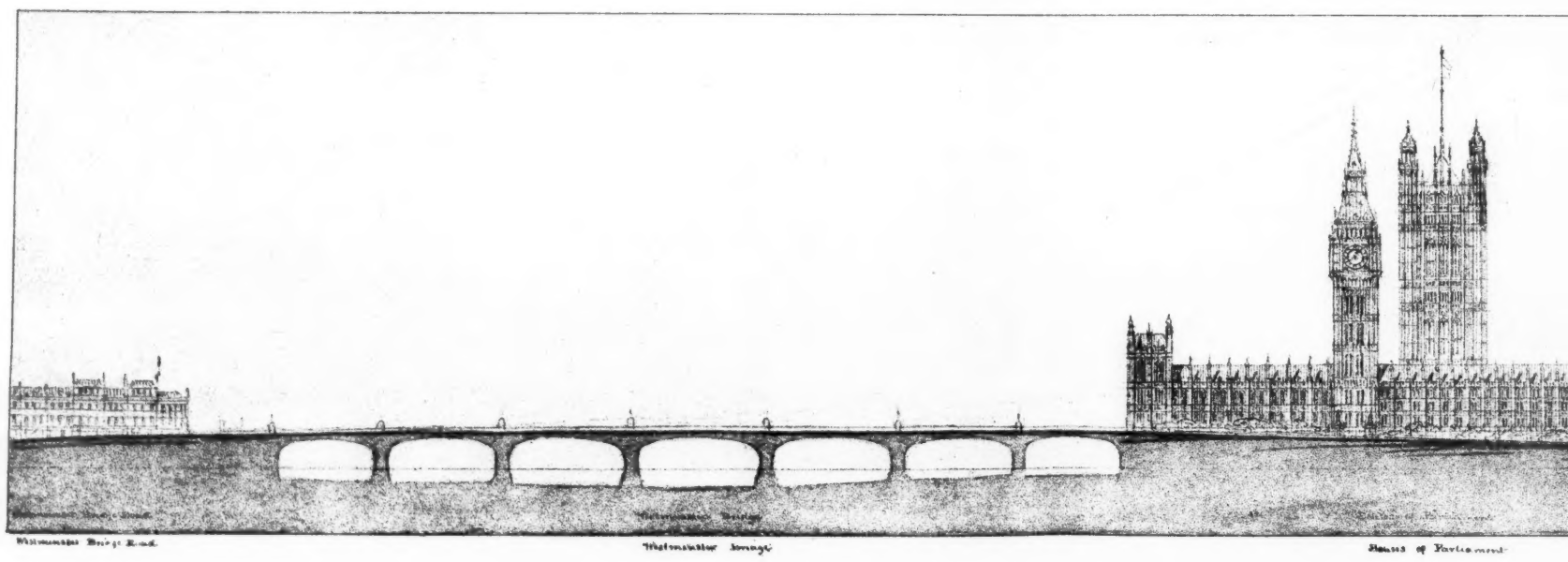


New Houses Millbank Street | St John's Church | New Houses | New Houses | Westminster School enlarged

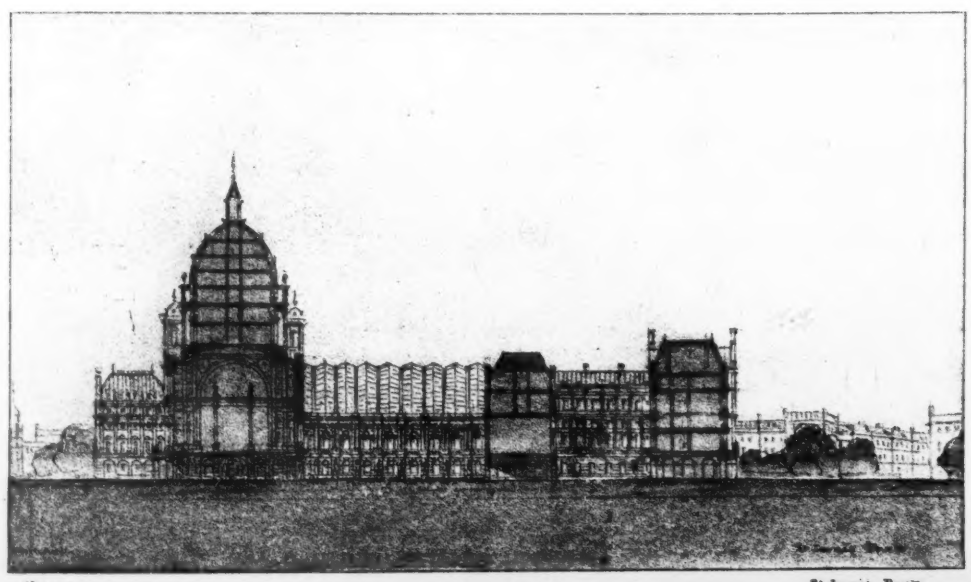


St Johns Church | Houses of Parliament

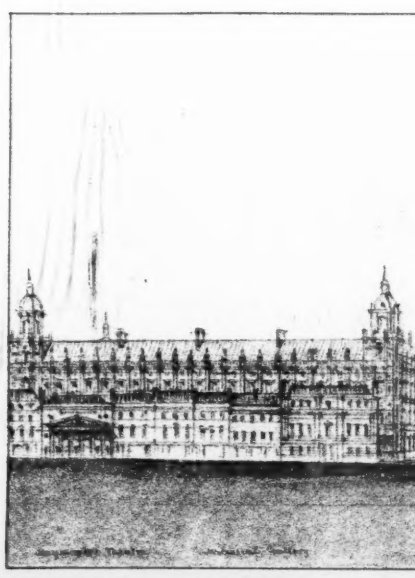


Westminster Bridge Road | Westminster Bridge | Houses of Parliament

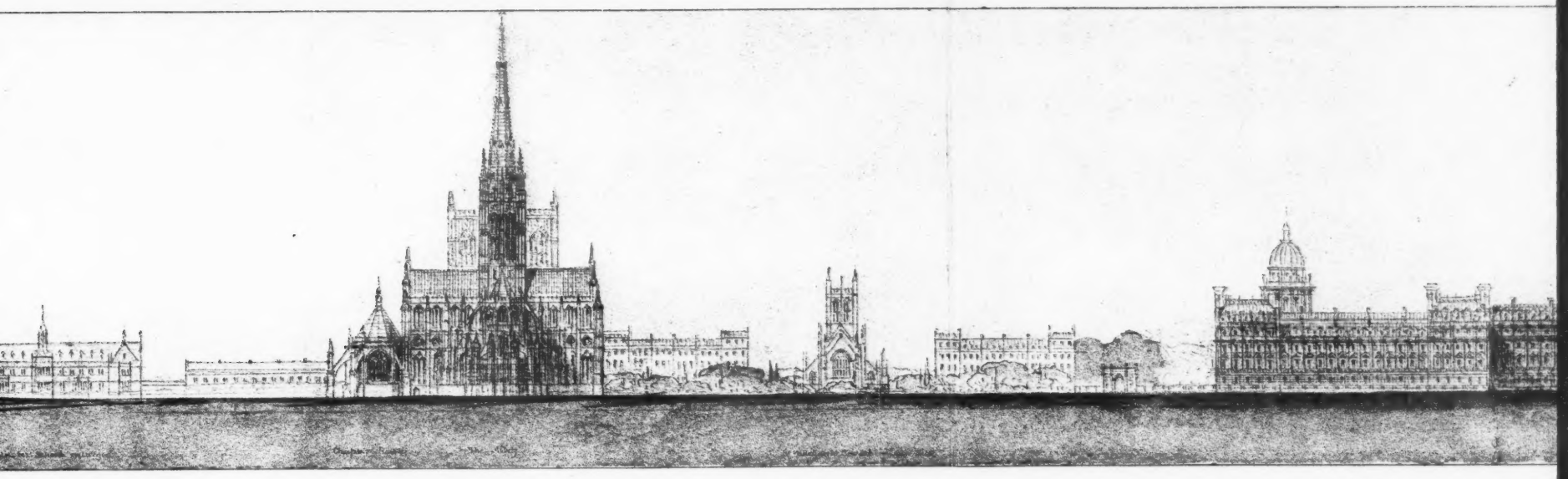
· SECTION · OF · WESTMINSTER · BRIDGE · AND · ELEVATIONS · OF · EXISTING · AND · PRO



Whitehall | St James's Park

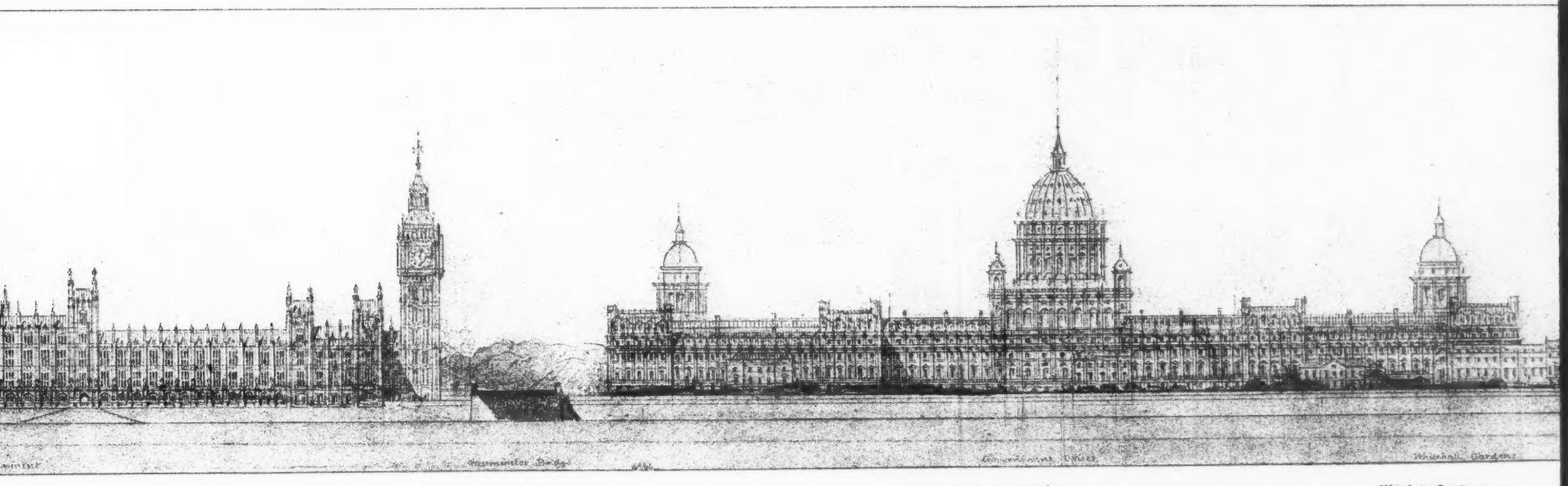


Haymarket Theatre | National Gallery



inster School enlarged | Chapter House | The Abbey | St Margarets Church on New Site | Horse Guards

· ELEVATIONS · OF · EXISTING · AND · PROPOSED · BUILDINGS ·



nt | Westminster Bridge | Government Offices | Whitehall Gardens

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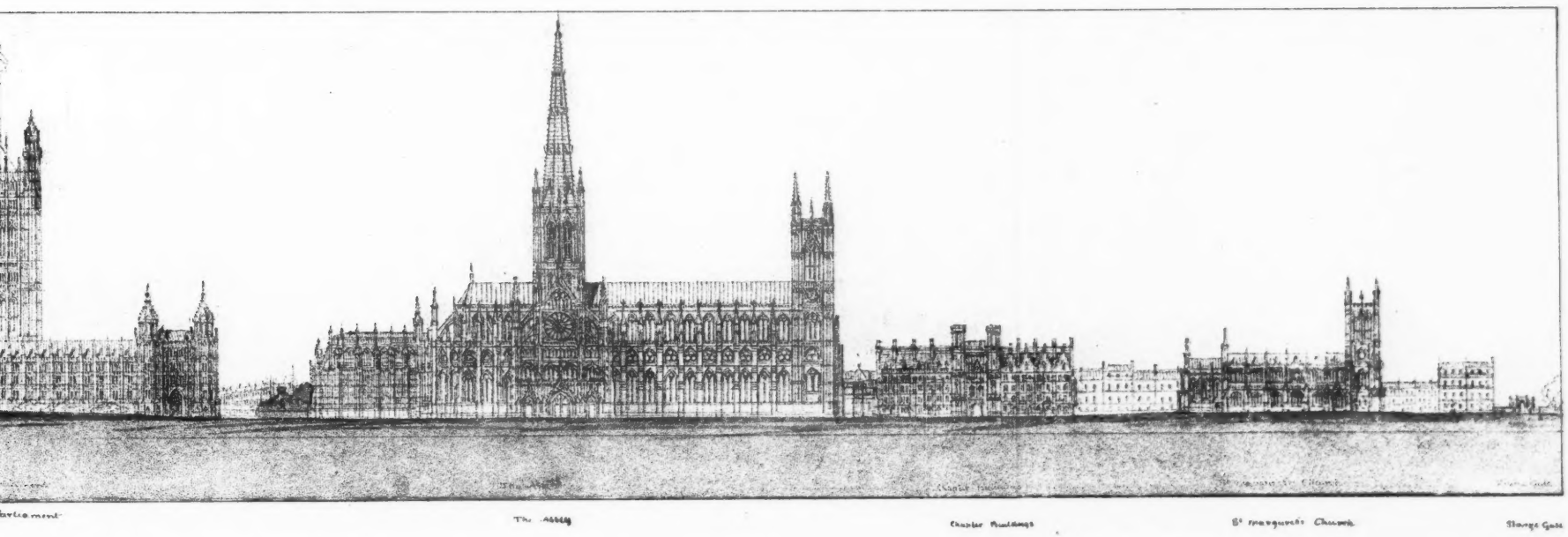
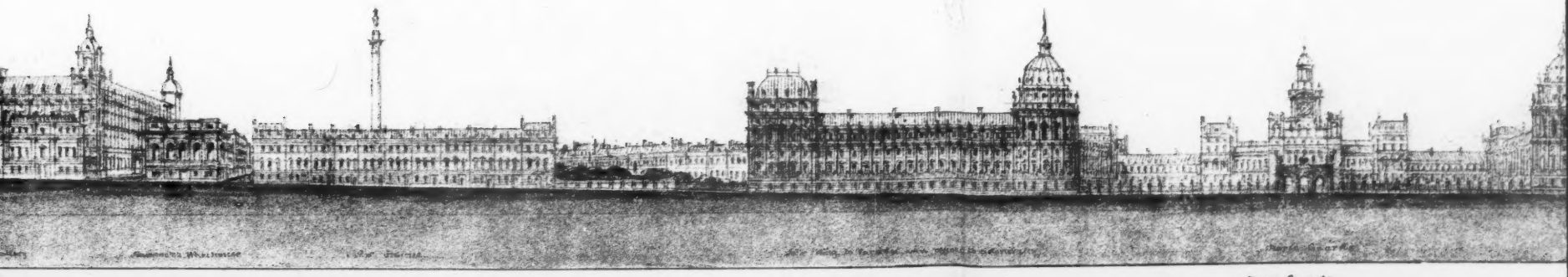
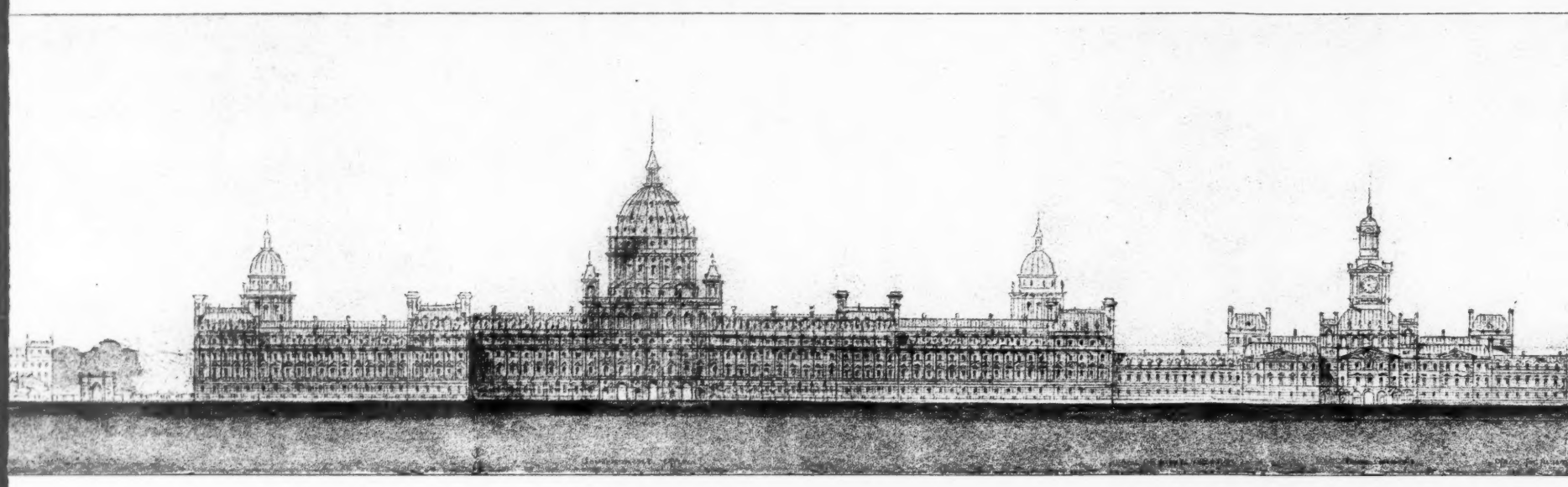


Parliament | The Abbey | Chapter Buildings | St Margarets Church | Storeys Gate

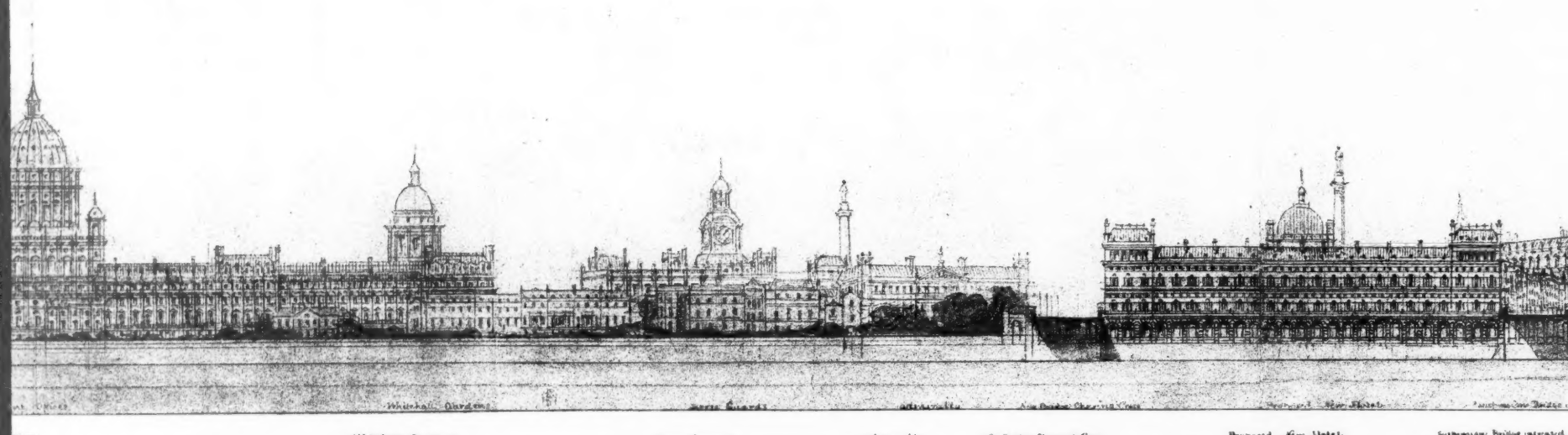
· AND · PROPOSED · BUILDINGS · FROM · BRIDGE · ROAD · TO · STOREYS · GATE · LOOKING · SOUTH ·



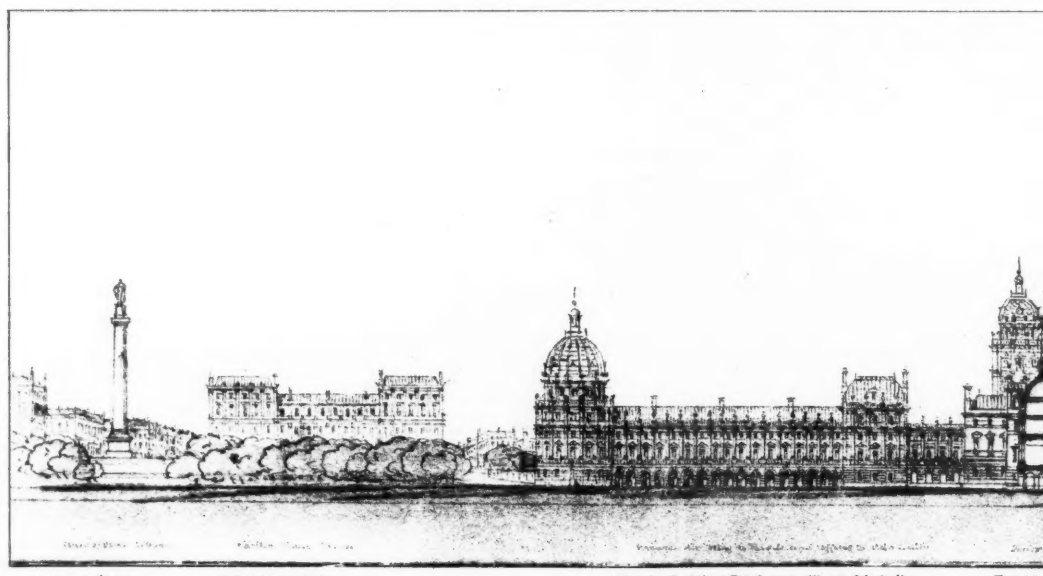
Ly | Admiralty Warehouse | New Houses | New Wing to Parade and offices to Admiralty | Horse Guards



·OF·EXISTING·AND·PROPOSED·BUILDINGS·IN·A·LINE·FROM·MILLBANK·TO·LEICESTER·SQUARE·LOOKING·WEST·



BUILDINGS·ON·THE·MIDDLESEX·BANK·OF·THE·RIVER·FROM·THE·PROPOSED·BRIDGE·AT·LAMBETH·TO·AND·INCLUDING·SOMERSET·HOUSE·



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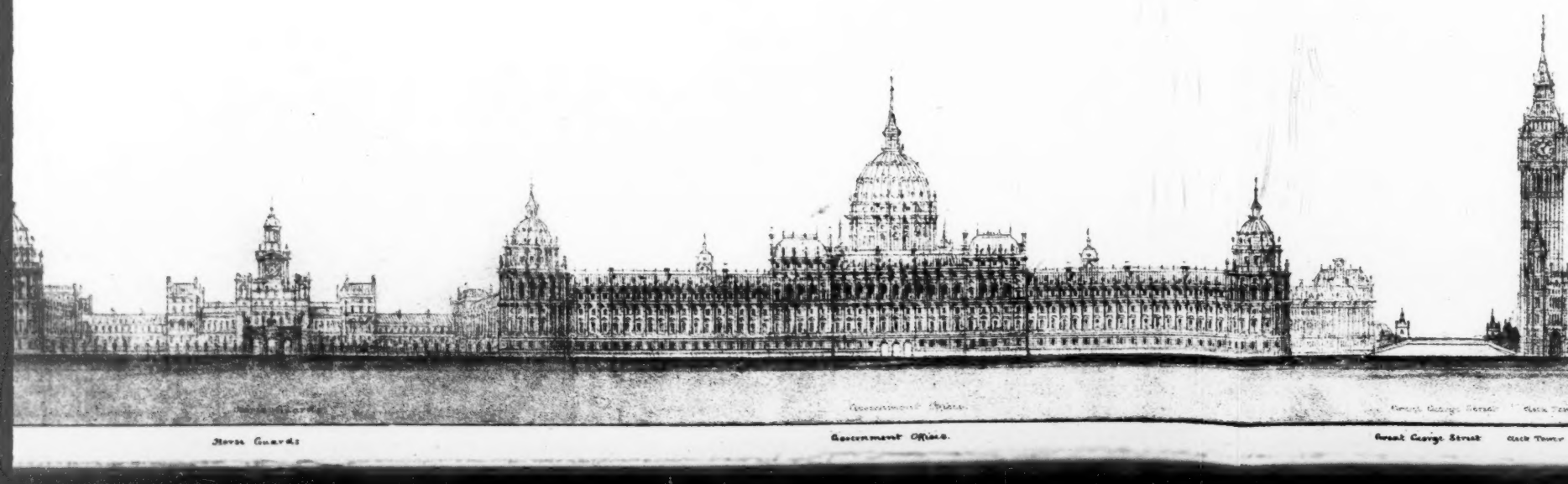
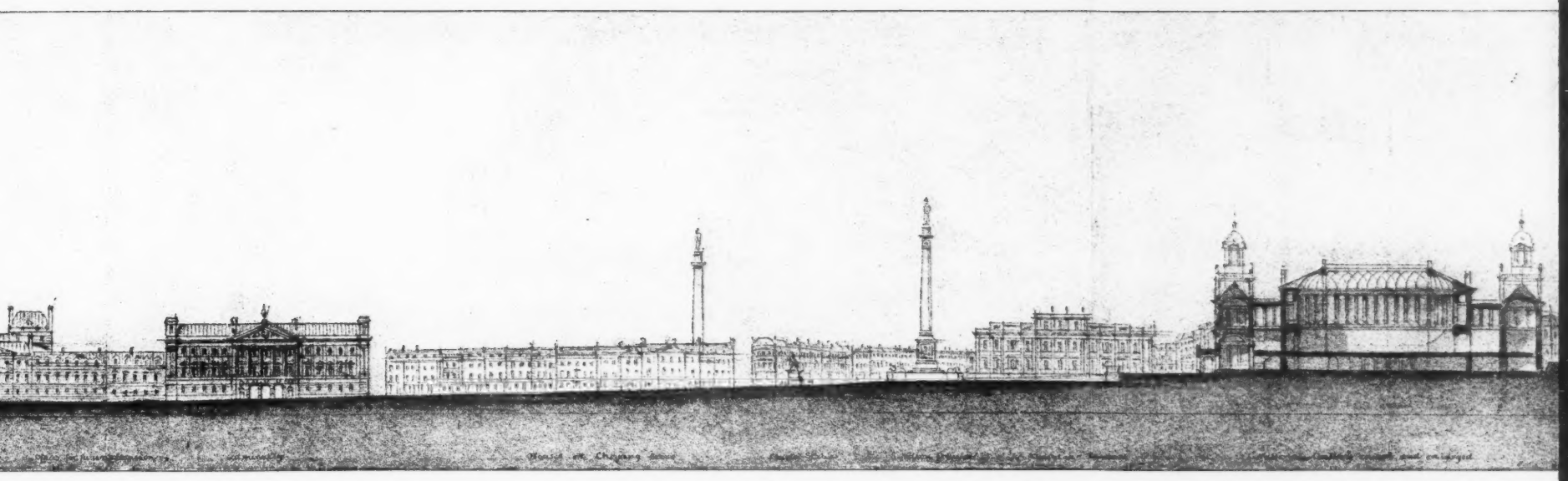
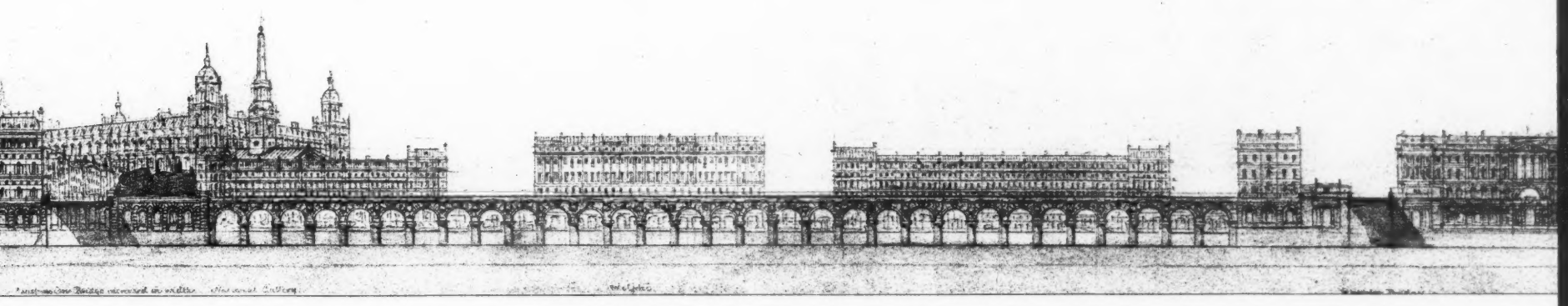
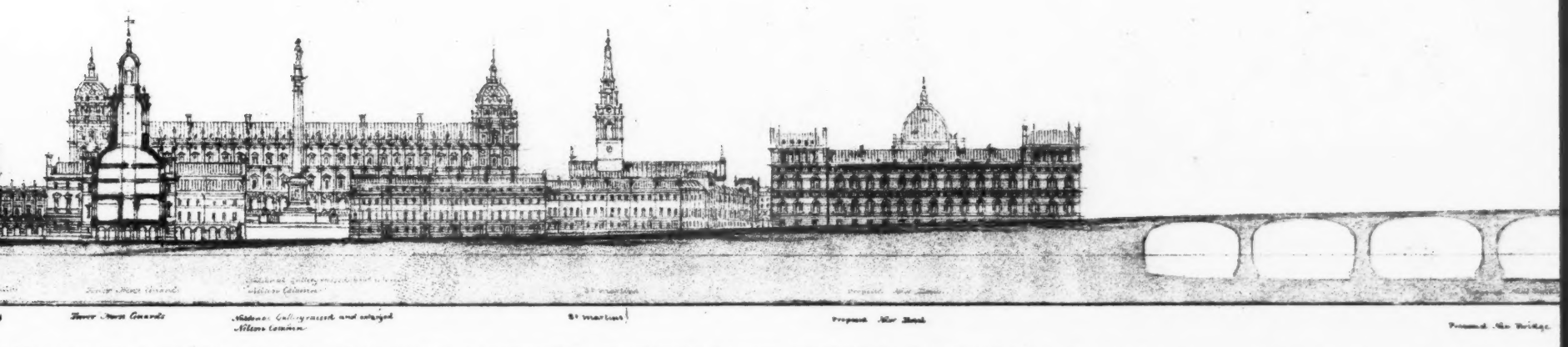






HOUSE.



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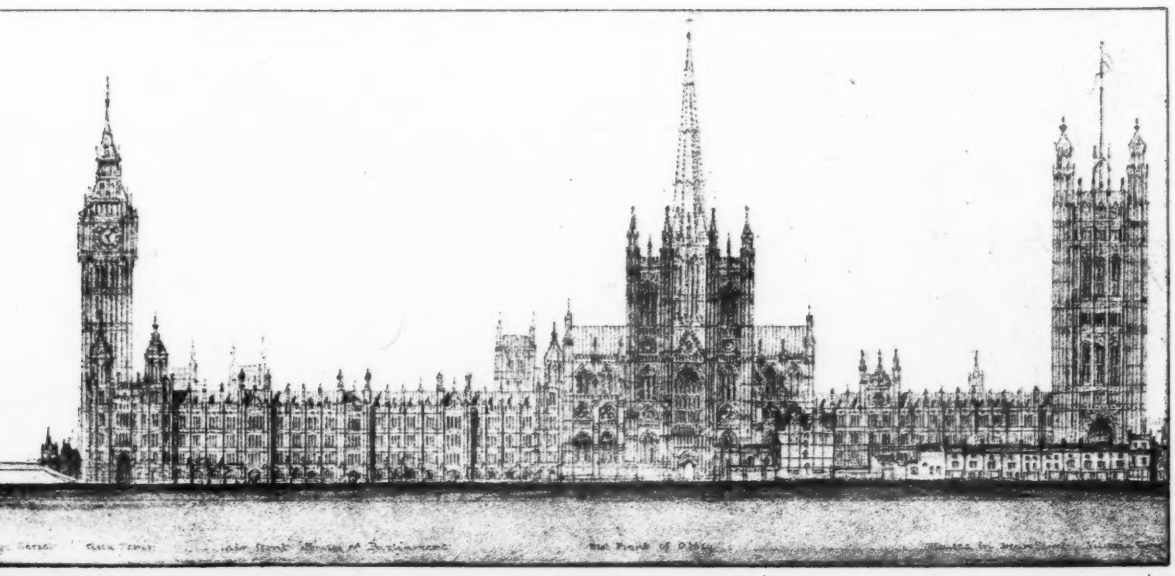
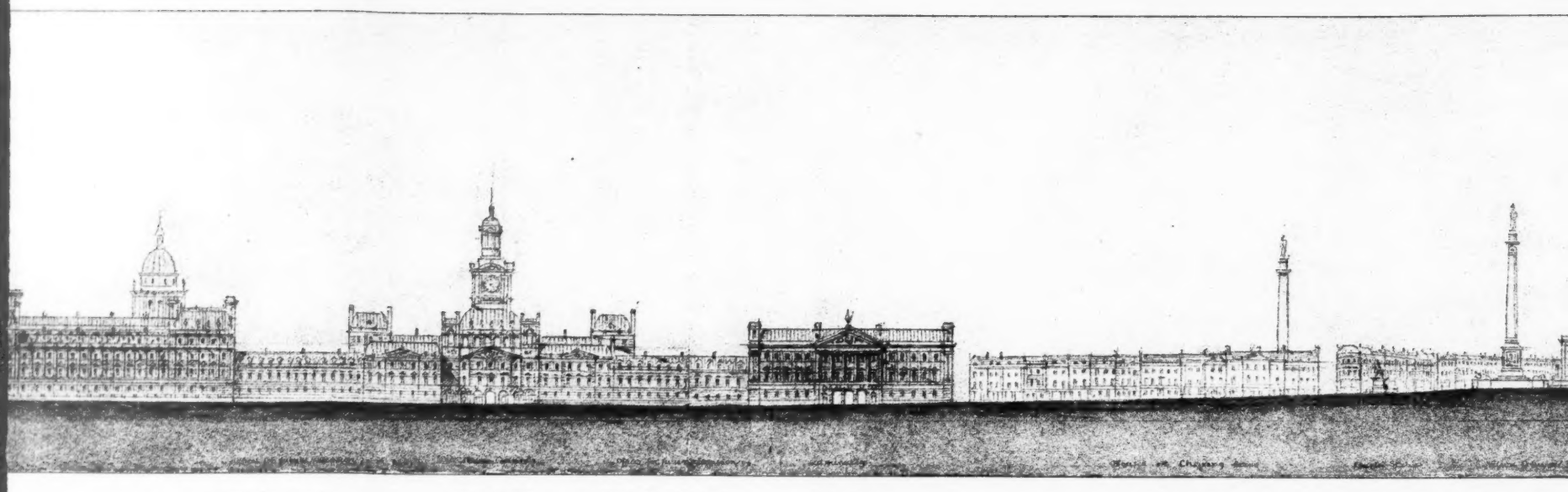
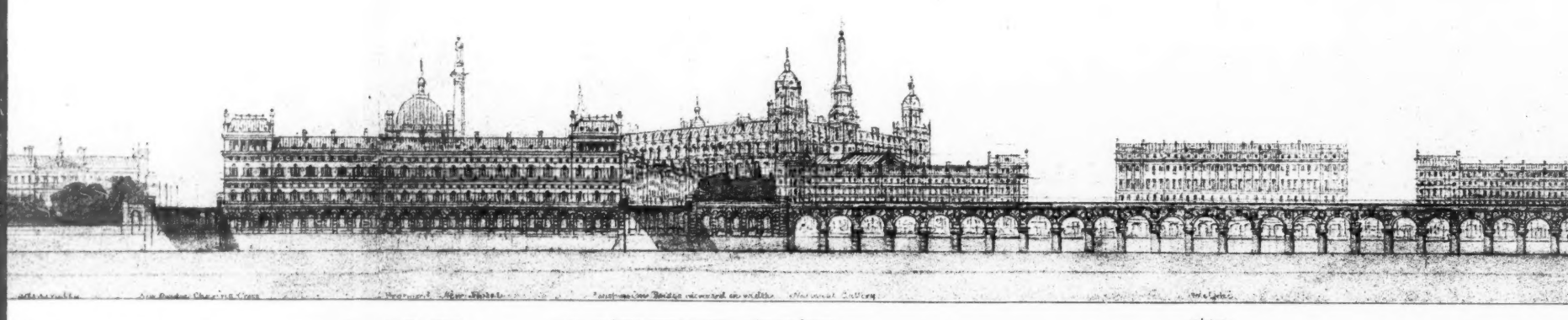
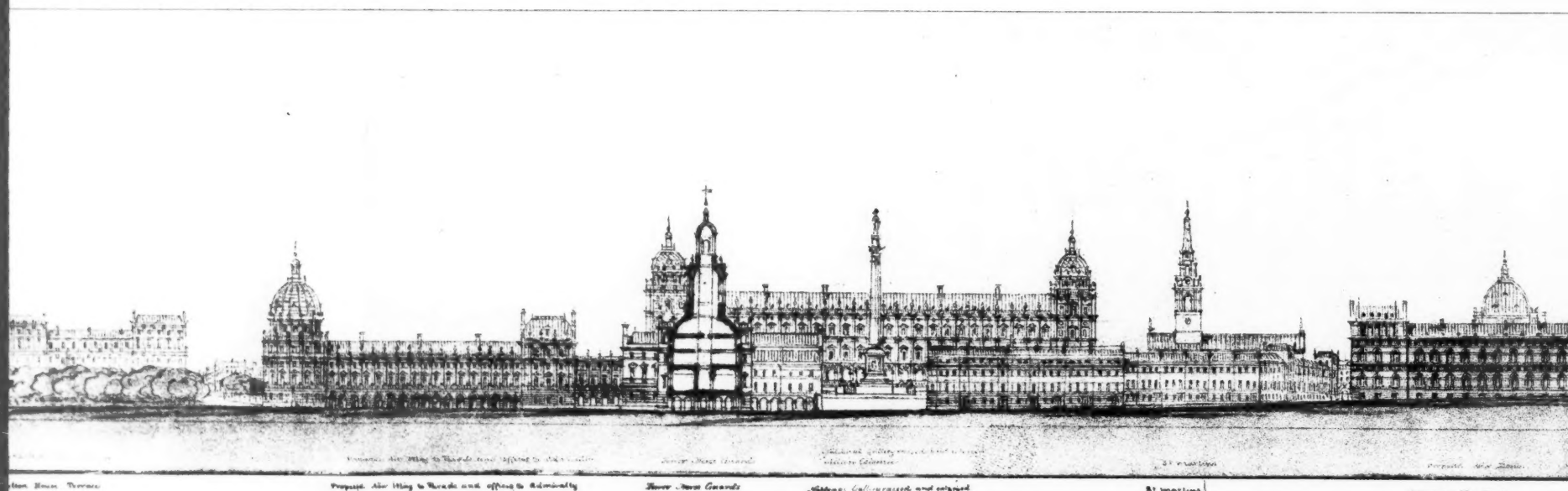




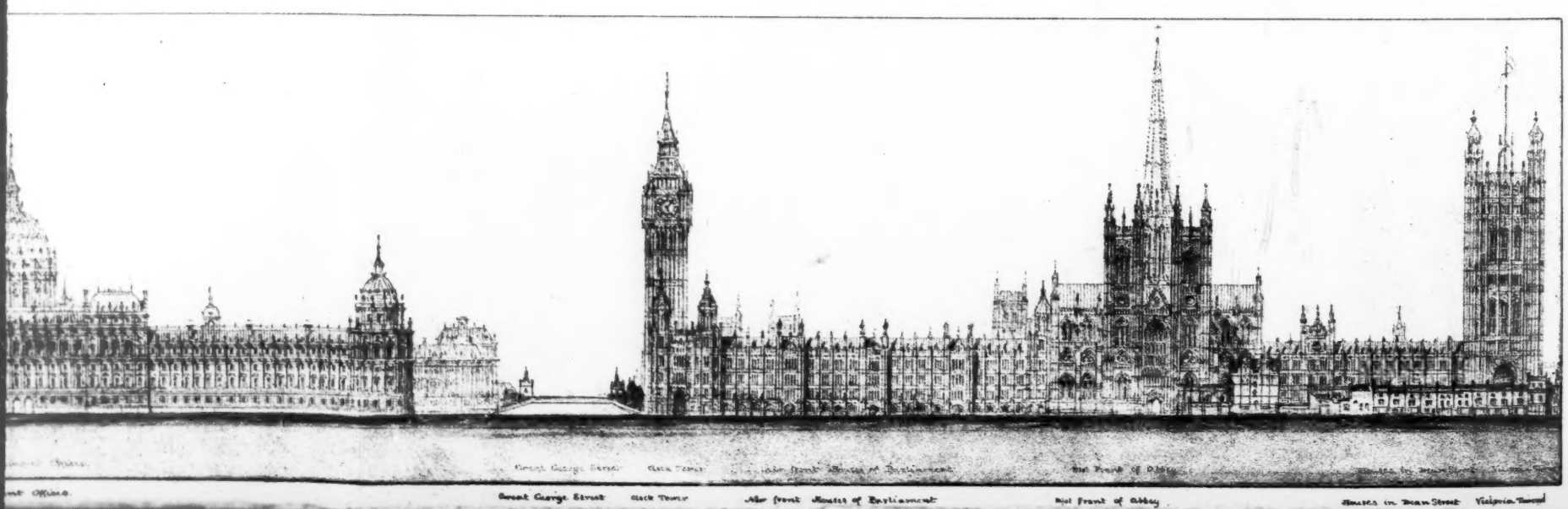
LEICESTER · SQUARE · LOOKING · WEST ·



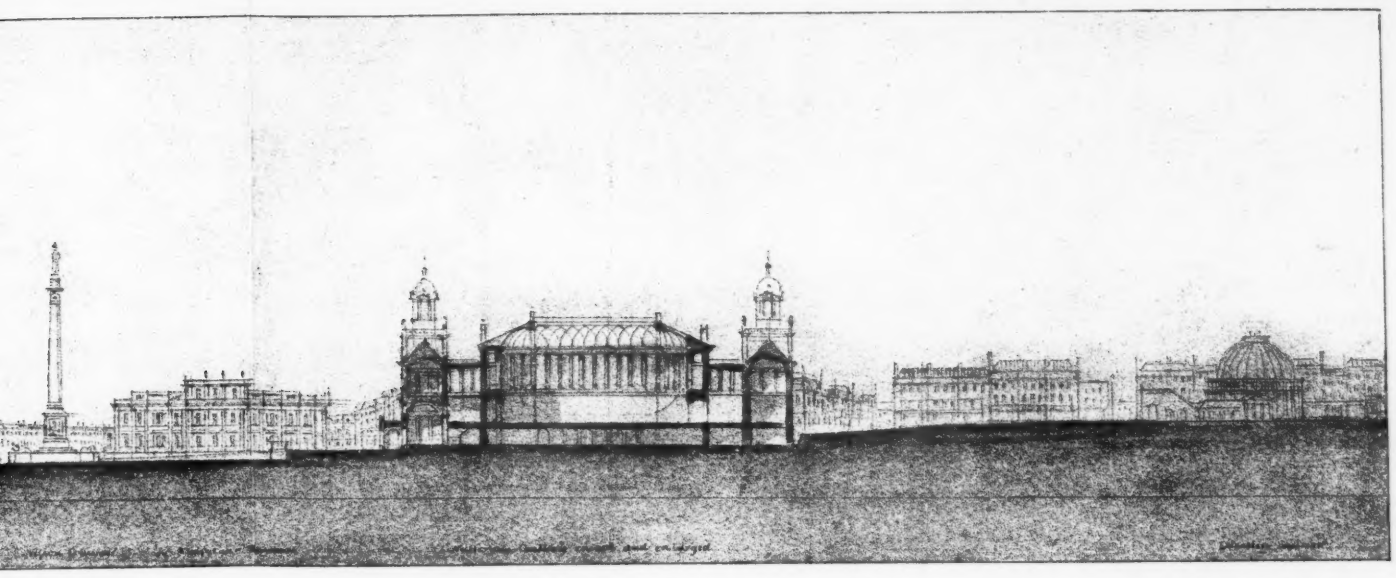
IDGE · AT · LAMBETH · TO · AND · INCLUDING · SOMERSET · HOUSE ·



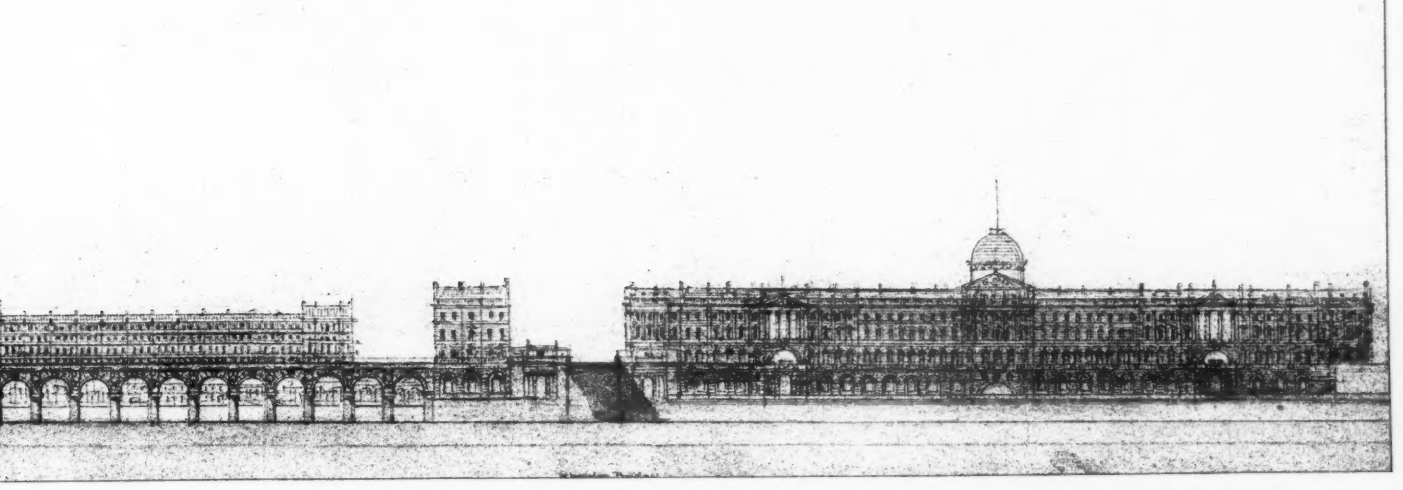
· SECTION · OF · THE · HORSE · GUARDS · AND · THE · PROPOSED · CHARING · CROSS · BRIDGE · SHEWING · ELEVATIONS · OF · EXISTING · AND · PROPOSED · BUILDIN



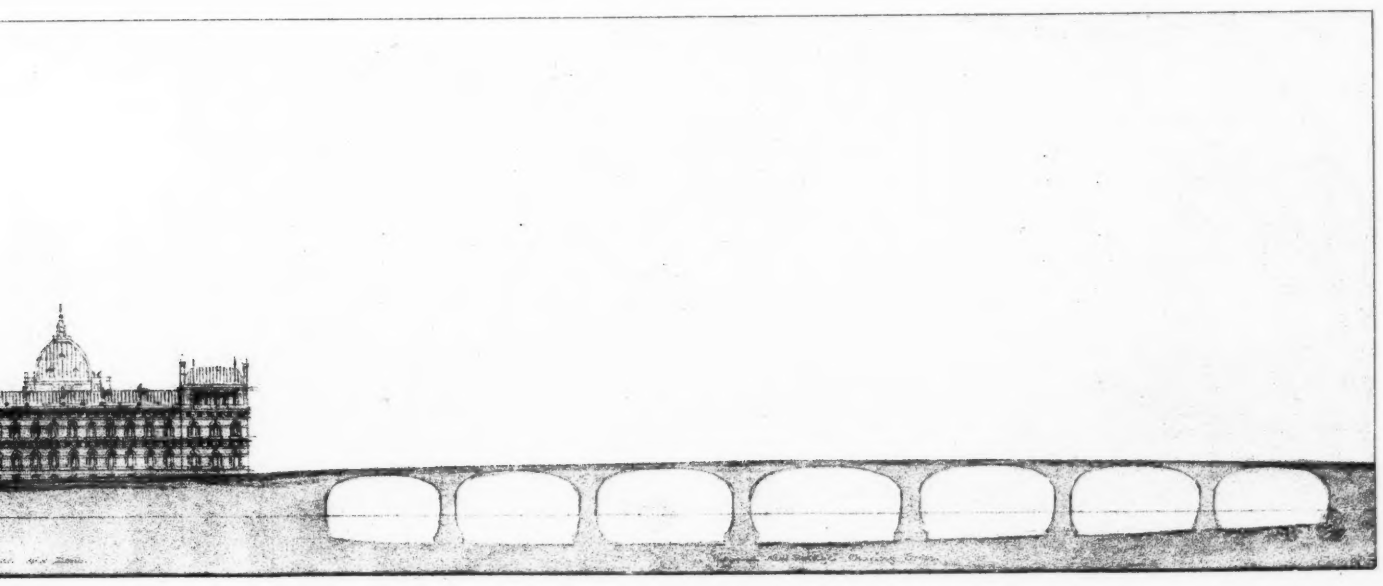
GENERAL LIBRARY,
UNIV. OF MICH.
JAN 16 1901



Nelson Column Trafalgar Square National Gallery raised and enlarged Leicester Square

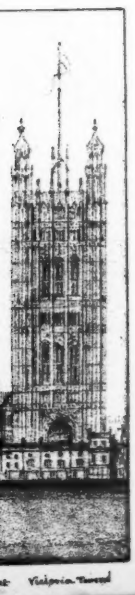


Waterloo Bridge Somerset House

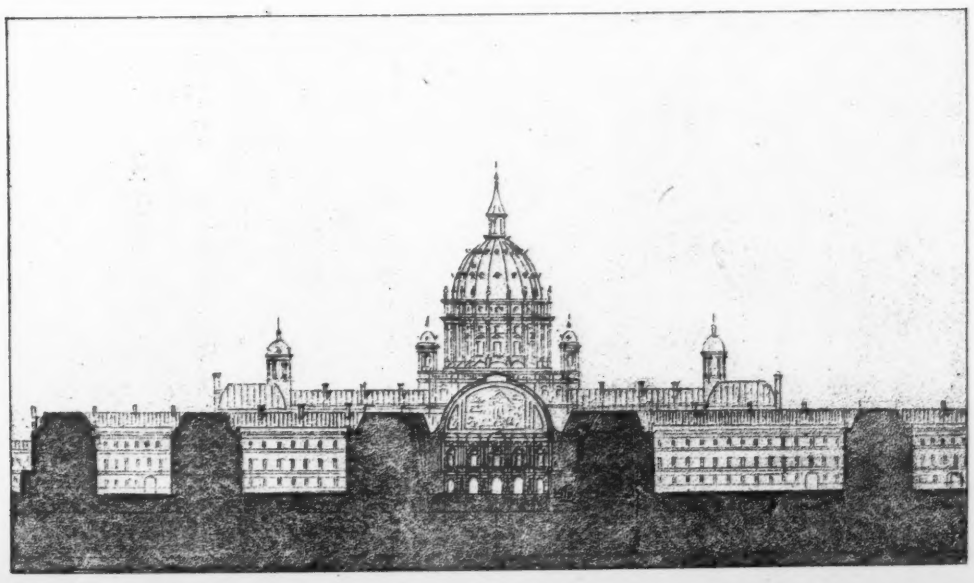


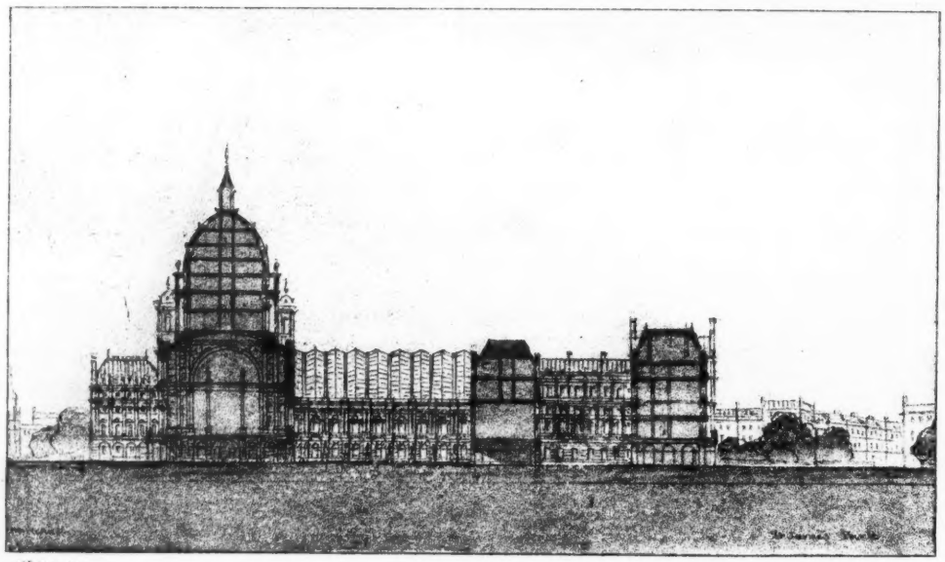
Hungerford Bridge Proposed New Bridge Charing Cross.

ED · BUILDINGS · IN · CONNECTION · THEREWITH · LOOKING · NORTH ·

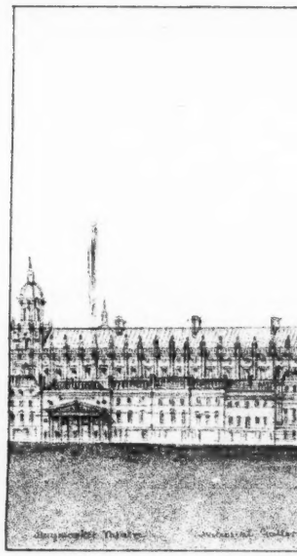


Victoria Tower





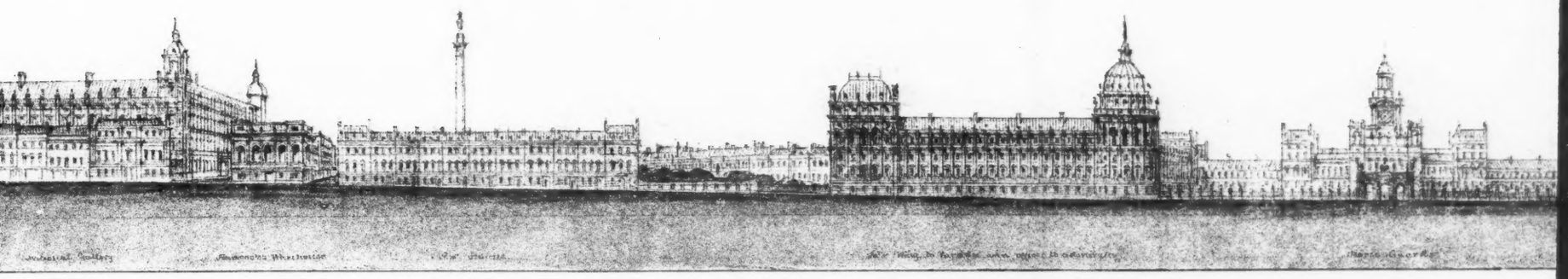
Whitehall St James Park



Haymarket Theatre National Gallery

LONGITUDINAL SECTION THRO GREAT HALL TO THE PROPOSED GOVERNMENT PALACE LOOKING SOUTH

GENERAL PRINCIPLES OF PLAN In forming this plan its Authors have ventured to be guided by the spirit, rather than by the letter of the official instructions, which, they consider to be incompatible with the best the object in view. They suggest that the whole of the Public offices should be concentrated and combined in one group of Buildings, that the Parade should be treated Architecturally, that the New Palace at Westminster, as proposed to Parliament; that the Abbey should have a central Tower and spire and be freed from all its Italian solecisms of detail, and together with the Chapter House, be properly restored; that be made to the Prebendal Houses, and a New Palace added, if need be, within the Abbey precincts, for a future Bishop of Westminster; and, for the due display of these important Edifices, it is recommended areas should be laid open to them, for ample thoroughfares, and ornamental Gardens. Thus these Buildings, so isolated, could not fail, when seen under varied combinations and effects, to produce a appearance. The removal of the several public edifices, and other Buildings, which happen to be on the site of the proposed ornamental Enclosures, would be necessary for the ultimate development of the only be removed from time to time as may be found convenient. In the mean time, the plan is so arranged, that these Enclosures, and the main thoroughfares adjoining them, may be formed, with their previous removal, and their unsightliness in the interim, may be screened from view, to a considerable extent, by planting. With reference to the Public Buildings in question, it is proposed, that St Margarets Church should be removed to the west side of the proposed Abbey Close, that the National schools should be placed in proximity with it, that the Westminster Hospital should be placed portion of the District, that the Sessions House should be removed to the Westminster Bridewell, that the Stationary Office should be placed between Victoria Street and Tothill Street, near their eastern and that the office of the Board of Control, should be removed, as soon as the accommodation provided for it in the proposed group of Public offices, is obtained. The only Residence of any importance sacrificed to the suggested improvement of Thoroughfares is Carrington House which in its isolated position with thoroughfares on three sides of it is not very eligible as a Noblemans residence



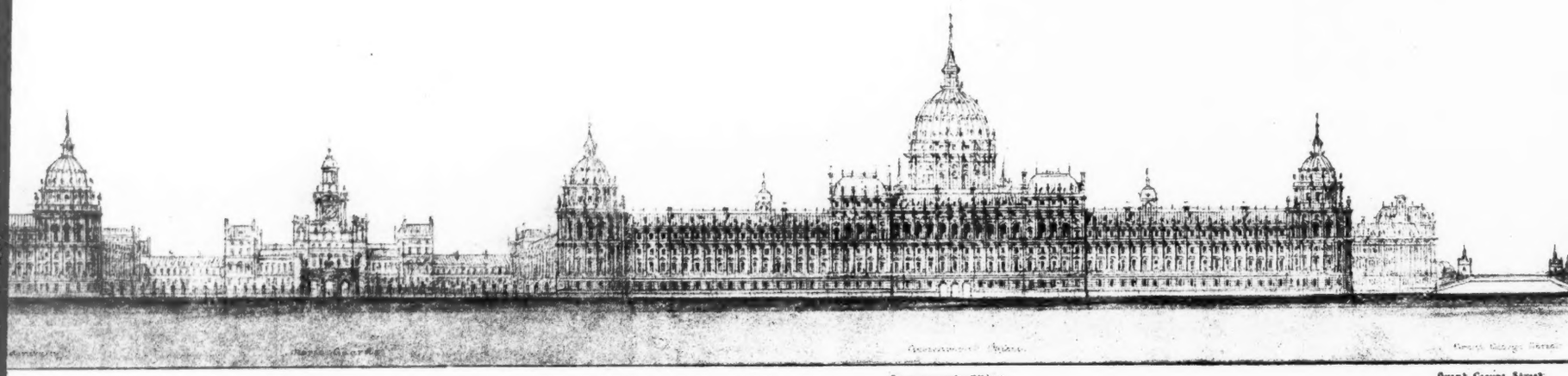
· ELEVATION · OF · EXISTING · AND · PROPOSED · BUILDINGS · IN · A · LINE · FRO

patible with the best realization of
at Westminster, should be completed
y restored; that additions should
ices, it is recommended that large
ffects, to produce a most striking
elopement of the plan, but need
ay be formed, without necessitating
, it is proposed, that sooner or later
should be placed in a more central
ar their Eastern termination
of any importance that is re-
idence

THE GOVERNMENT OFFICES AND THEIR ADJUNCTS Considering the large expenditure already incurred, upon the existing public offices of the locality, the authors of this plan, are induced, upon economic practical grounds, to recommend, that the Board of Trade and Treasury Chambers towards St James Park, the Horse Guards, and the Admiralty, should be retained, and with certain external modifications, b with, and form part of, a scheme for concentrating the whole of the Public offices in one connected mass of Building, between the Park, and Whitehall; which suggestion, they believe, may be carried out, convenient, and striking manner. Owing to the looseness of the site, which is less than 2 feet above the highest known tides, great loftiness of Structure, is proposed, and all habitable accommodat is deprecated. A great Dome, over the main Entrance of the Public Offices, is suggested, in order that they may vie in importance, with the Abbey, and New Legislative Palace, and have a dist as a feature of Westminster, and also as seen from a distance. To allow of a comparison being formed, between these offices, and other existing and proposed Buildings of the District, a refere to the illustrations of the block plan, where all such Buildings, are shown truly upon one scale, in their relative positions, and on their true levels. The principal carriage and foot entranc offices, is proposed to be from Whitehall, into a grand Hall 320 feet long, and 150 feet wide, covered with a glass roof, and affording access, by Archways, to the several Courts of the Edifice. Upon the Receptions, and other gatherings, the great Hall would afford ample accommodation for all Carriages in attendance, and might be found useful occasionally, for other Public purposes, where a l lighted covered area, might be required. The magnitude and arrangement of the Main Building, is such, as to afford ample accommodation for all the offices enumerated in the official in the exception of the Admiralty, which, is proposed to have its additional quota of accommodation provided for, towards the Parade; where, also, as well as on each side of the Horse Guard accommodation for other Public purposes, which may hereafter be required. The boundary of the Public offices towards the Park, is such, as to increase its present area. The only existing

SIR CHARLES BARRY'S GREAT ARCHITECTURAL SCHEME

SHOWING THE ELEVATIONS OF THE SEVERAL EXISTIN

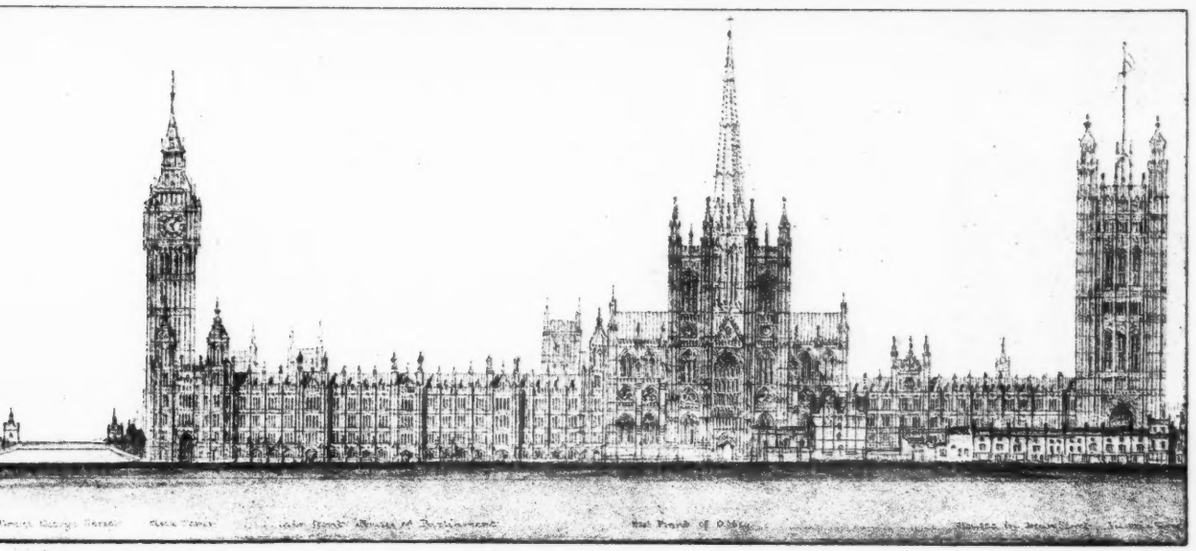


ISTING·AND·PROPOSED·BUILDINGS·IN·A·LINE·FROM·THE·HAYMARKET · THEATRE · TO·AND·INCLUDING·DEAN·STREET·LOOKING·EAST·

ing public offices of the locality, the authors of this plan, are induced, upon economical as well as ar... the Admiralty, should be retained, and with certain external modifications, be made to group w... Park, and Whitehall; which suggestion, they believe, may be carried out, in a most summ... al loftiness of Structure, is proposed, and all habitable accommodation in the Basement ...ontinence, with the Abbey, and New Legislative Palace, and have a distinctive character ...ffices, and other existing and proposed Buildings of the District, a reference is solicited, ...ns, and on their true levels. The principal carriage and foot entrance, to the Public ... ording access, by Archways, to the several Courts of the Edifice. Upon the occasion of great ...d might be found useful occasionally, for other public purposes, where a large and well ar...mple accommodation for all the offices enumerated in the official instructions, with... ...ds the Parade; where, also, as well as on each side of the Horse Guards, is provided an ...ds the Park, is such, as to increase its present area. The only existing office, in a sound state, and having any architectural pretensions, which must be removed, is the State Paper office, which, is obviously too much in the way of a g... enclosed by the public offices on three sides, and by the open screen to the Park on the fourth, would form a striking feature of the locality... inspections, than at present, and the advantage which is proposed, of being able to close it at pleasure, might be found to be of import... but also of the Police. **THOROUGHFARES AND TRAFFIC** Ample accommodation is provided for the diversion of the eastern and western ... and St James' Park, by means of two new Bridges across the River, and a public thoroughfare through the Mall to the Strand. Westm... as being the natural line of communication with the Bird Cage Walk, and the most convenient approach to the three important Buil... importance however, that the level of its roadway, as determined by Parliament, should remain unaltered, otherwise, the effect... Offices, will be seriously injured. To obviate, in some degree, the sunken effect of the New Palace at Westminster, as it will be seen ... Parliament; a raising of the River Terrace of that Building, might be worthy of consideration, upon that, as well as other ground... Charing Cross; one, an entire new bridge, and the other, the present Suspension Bridge widened for Carriages. The former is pref... hoped, that its principle of suspension may be abolished, so that the present Towers and Chains, may no longer destroy some... **MISCELLANEOUS IMPROVEMENTS.** Assuming, that the long proposed and in part adopted plan, of embanking the R...

AT ARCHITECTURAL SCHEME FOR GOVERNMENT OFFICES AND THE WESTMINSTER DISTRICT.

VATIONS OF THE SEVERAL EXISTING AND PROPOSED BUILDINGS INDICATED IN THE BLOCK PLAN ON SHEET I.



t George Street Clock Tower New front Houses of Parliament Rist Front of Abbey. Houses in Bean Street Victoria Tower

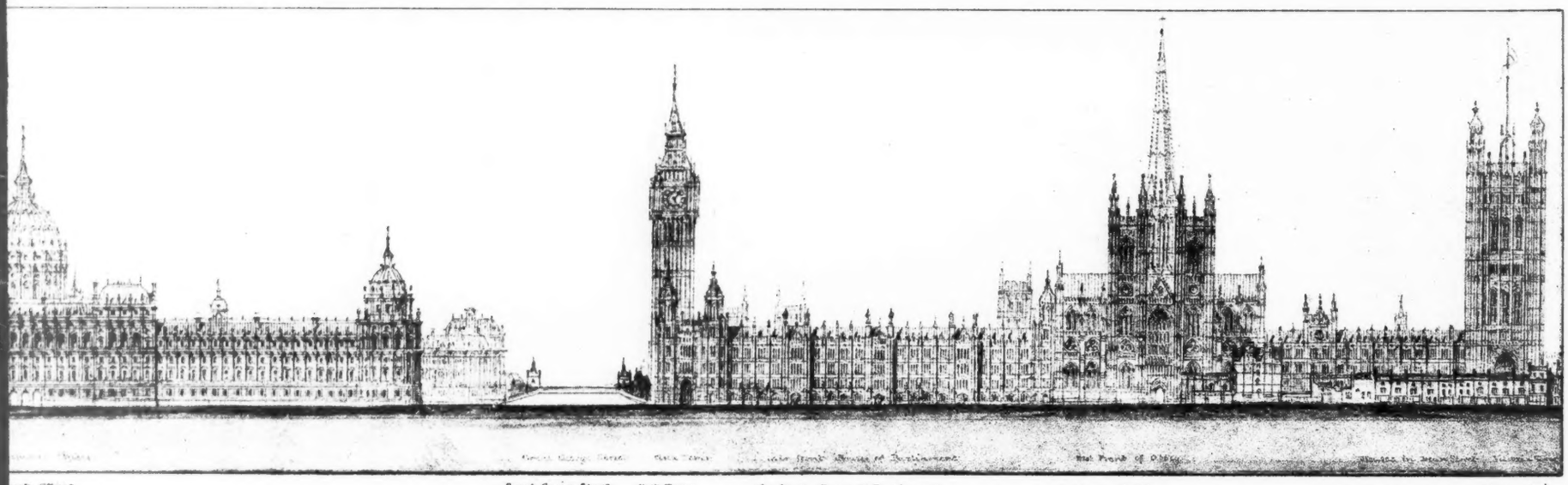
·TRANSVERSE·SECTION·OF THE PROF

in the way of a good general arrangement of plan to be allowed to remain. The Parade
of the locality, and provide a larger and more conveniently arranged area, for
and to be of important use, in times of Public excitement, not only for the inspection of the Military
am and western traffic, through the proposed main North and South thoroughfares of Whitehall
Strand. Westminster Bridge, rebuilt as proposed, should be retained in its present position,
important Buildings in Westminster, from the Surrey side of the River. It is of the utmost
rwise, the effect of not only the Palace at Westminster, but also of the proposed Government
d will be seen from the Bridge, even when lowered, to the level determined by
as other grounds. The plan exhibits two alternative propositions, for the Bridge at
e former is prefered by the Authors of this plan, but if the latter should be adopted, it is
destroy some of the finest effects of London, as seen from various points of view.
mbanking the River, with a view to the improvement of its navigation, and appearance,

and the removal of its present offensive and insalubrious effluvia, must at no distant periods, be accomplished, it is proposed,
Bridge and Waterloo Bridge, should be treated ornamentally, and have public quays on each side of it, with Houses in Terraces a
unsightly, and in fact numerous Buildings, which at present disfigure both shores of this noble river. Amongst these Buildings
Charing Cross Bridge, the promoters of which, it is believed, would construct so much of the Embankment as is needed
of the site reclaimed, assigned to them, as an equivalent. An extension of the National Gallery is proposed for an
for the use of the Royal Academy and Schools of Design, as well as for periodical displays of Art and Science by in
however, that no better locality can be found, for such objects. The mansion of Whitehall Chapel, provides for an impro
appearance of the Building, while it would form an appropriate Entrance to the Road, to the New Charing Cross Bridge. If this suggestion
provided in the New Museum for a Gallery of Portraits of all the most eminent men of the Naval and Military Services. With respect to the Basin sh
whether the whole of the Site of that basin and adjoining wharves might not be devoted to a great Central Terminus for the whole of the railways of the Met
converted into a railway Bridge exclusively for communicating with the several Railways on the Surrey side of the River and with respect to those on the Mid
as far as the proposed station in Farringdon Street and continue that connection by tunnelling under Fleet Street and the Strand to the Great Cent

STRICT. SHEET II.

EET I.



CLUDING · DEAN · STREET · LOOKING · EAST ·

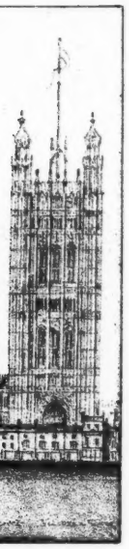
which must be removed, is the state Paper office, which, is obviously too much in the way of a good general arrangement of plan to be allowed to remain. The Parade d by the open screen to the Park on the South, would form a striking feature of the locality, and provide a larger and more conveniently arranged area, for wh ntage which is proposed, of being able to close it at pleasure, might be found to be of important use, in times of Public excitement, not only for the inspection of the Military

S AND TRAFFIC ample accommodation is provided for the diversion of the eastern and western traffic, through the proposed main North and South thoroughfares of Whitehall idges across the River, and a public thoroughfare through the Hall to the Strand. Westminster Bridge, rebuilt as proposed, should be retained in its present position, with the Bird Cage Walk and the most convenient approach to the three important Buildings in Westminster, from the Surrey side of the River. It is of the utmost dway, as determined by Parliament, should remain unaltered, otherwise, the effect of not only the Palace at Westminster, but also of the proposed Government , in some degree, the sunken effect of the New Palace at Westminster, as it will be seen from the Bridge, even when lowered, to the level determined by mar of that Building, might be worthy of consideration, upon that, as well as other grounds. The plan exhibits two alternative propositions, for the Bridge at nd the other, the present Suspension Bridge widened for Carriages. The former is prefered by the Authors of this plan, but if the latter should be adopted, it is y be abolished, so that the present Towers and Chains, may no longer destroy some of the finest effects of London, as seen from various points of view.

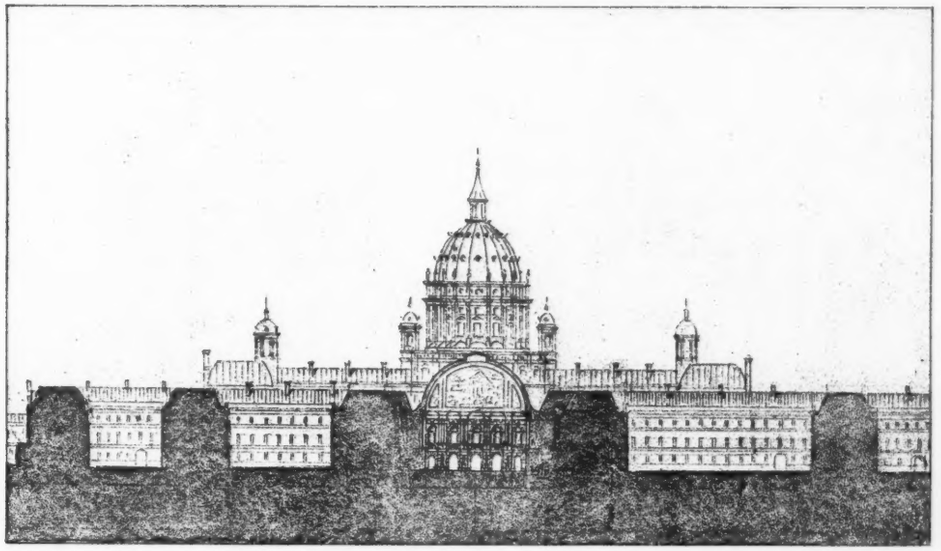
ENTS. Assuming, that the long proposed and in part adopted plan, of embanking the River, with a view to the improvement of its navigation, and appearance, and the removal of its present offensive and insalubrio Bridge and Waterloo Bridge, should be treated ornamen unsightly, and in fact ruinous Buildings, which at pr Charing Cross Bridge, the promoters of which, it is belie of the Site reclaimed, assigned to them, as an equiva for the use of the Royal Academy and Schools of however, that no better locality can be found, f appearance of the Building, while it would form an appro provided in the New Museum for a Gallery of Portraits of all the whether the whole of the Site of that basin and adjoining wharves converted into a railway Bridge exclusively for communicating wi as far as the proposed station in Farringdon Street and contin

S AND THE WESTMINSTER DISTRICT. SHEET II.

DICATED IN THE BLOCK PLAN ON SHEET I.



Victoria Tower



·TRANSVERSE·SECTION·OF THE PROPOSED·GOVERNMENT·PALACE THRO' THE GREAT·HALL· LOOKING·EAST·

…and insalubrious effluvia, must at no distant period, be accomplished, it is proposed, that at least, such portion of the River, as lies between the proposed Lambeth … treated ornamentally, and have public quays on each side of it, with Houses in Terraces and otherwise, adjoining them, so as to screen from view the mean … ings, which at present disfigure both shores of this noble river. Amongst these Buildings, it is proposed to place a great Hotel, as the Meadless end of the … which, it is believed, would construct so much of the Embankment as is needed for their purposes, at their own cost, upon having the fee simple … s, as an equivalent. An extension of the National Gallery is proposed for an increase of the accommodation for the National Collections of Art, and … and Schools of Design, as well as for periodical displays of Art and Science &c. in Galleries, exclusively devoted to the purpose, on the assumption … n be found, for such objects. The mansion of Whitehall Chapel, provides for an improved United Service Museum, and would remedy the present fragmentary … d form an appropriate Entrance to the Road, to the New Charing Cross Bridge. If this suggestion was entertained it might be worthy of consideration whether accommodation should not be … f Portraits of all the most eminent men of the Naval and Military Services. With respect to the Basin shewn for the use of the shores under the Adelphi Terrace it might perhaps be worthy of consideration … djoining wharves might not be devoted to a great Central Terminus for the whole of the railways of the Metropolis. In such case it would be advisable that the present Suspension Bridge should be … communicating with the several Railways on the Surrey side of the River and with respect to those on the Middlesex side it is proposed that advantage should be taken of the Metropolitan Act to connect them … Street and continue that connection by tunnelling under Fleet Street and the Strand to the Great Central Terminus in the Site suggested. …

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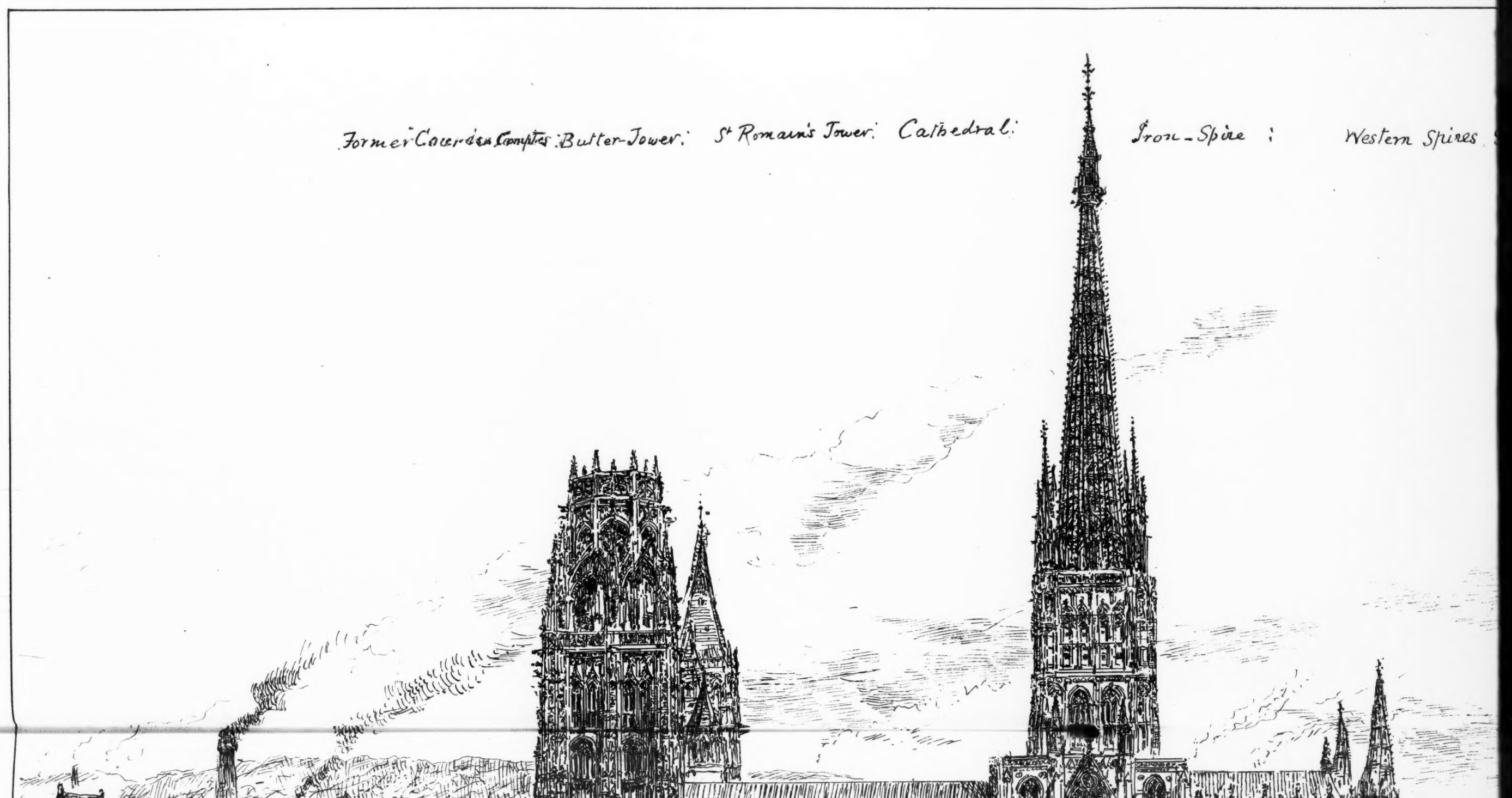
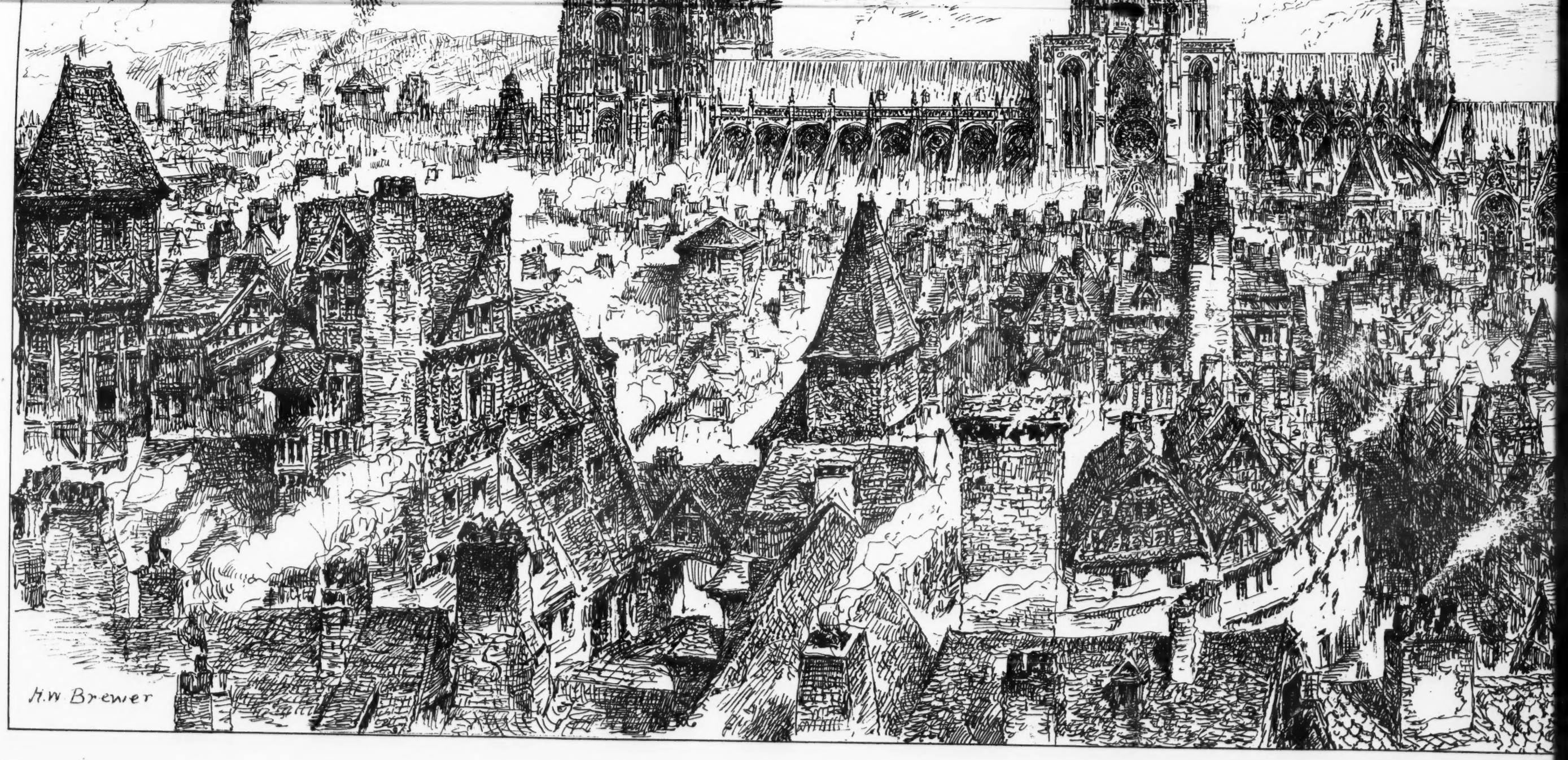

Former Cover-ies Comptes
Butter-Tower
St Romain's Tower
Cathedral
Iron-Spire
Western Spires



THE HEART OF ROUEN.

SKETCHED UPON THE SPOT BY MR. H. W. BREWER,

er: St Romain's Tower. Cathedral.
Iron-Spire :
Western Spires St Ouen: Lantern: St Ouen ;
St Maclou.

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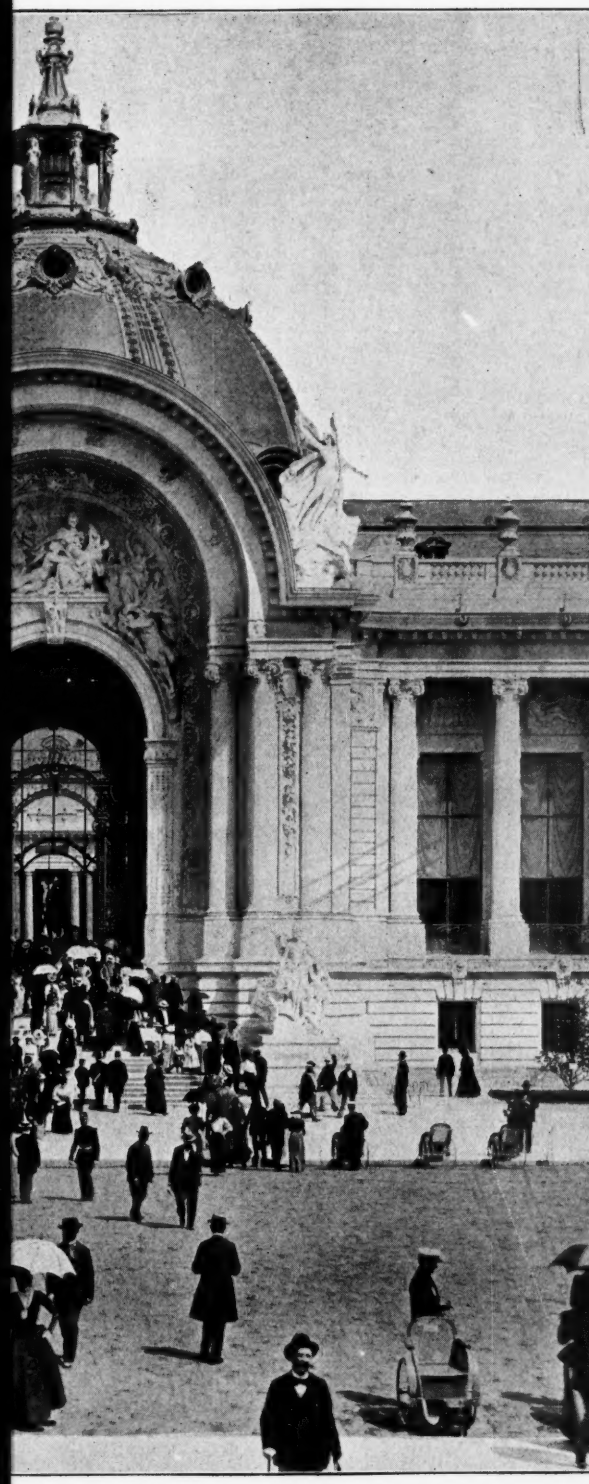
THE HEART OF ROUEN.

SKETCHED UPON THE SPOT BY Mr. H. W. BREWER,

TH

THE SMALLER ART PALACE ON THE CHAMPS ELYSÉES, PARIS.—M. GIRAULT, ARCHITECT.

THE PRINCIPAL FAÇADE.



HAMPS ELYSÉES, PARIS.—M. GIRAULT, ARCHITECT

NCIPAL FAÇADE.

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, ARCHITECT.

THE SMALLER ART PALACE ON THE CHAMPS EL

THE INTERIOR COU

MPS ELYSÉES, PARIS.—M. GIRAULT, ARCHITECT.
IOR COURT.

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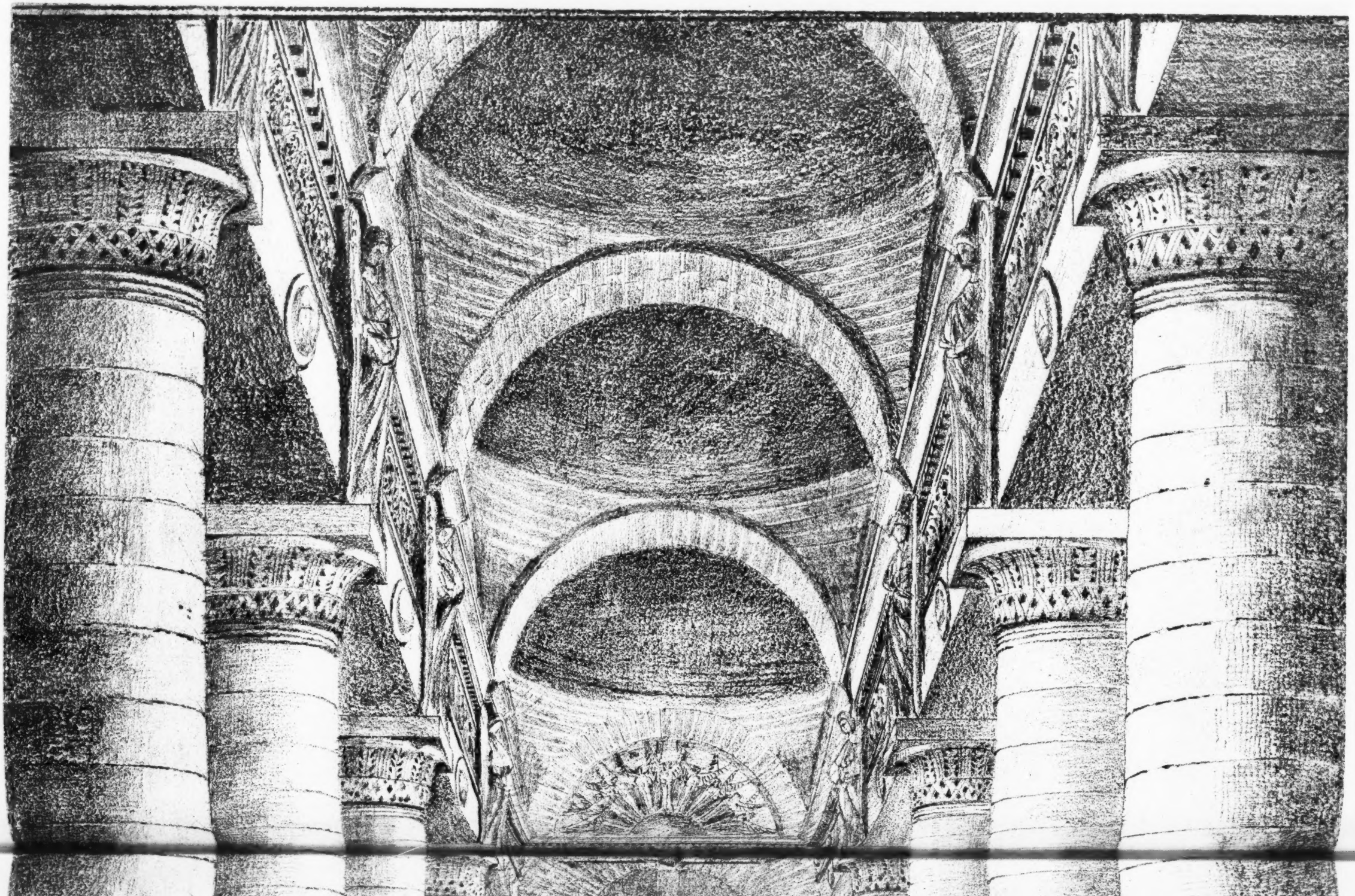

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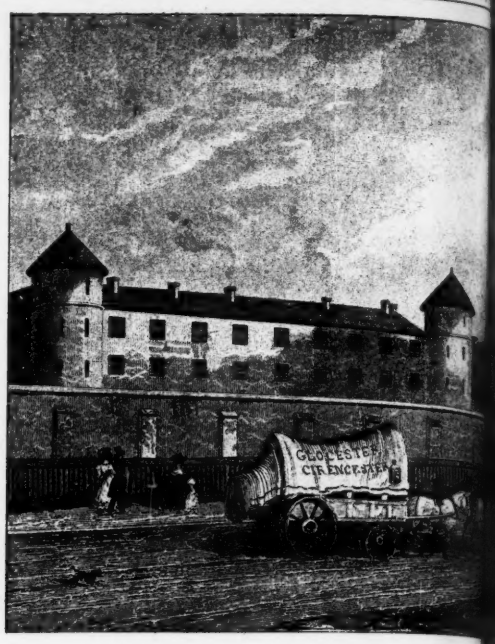
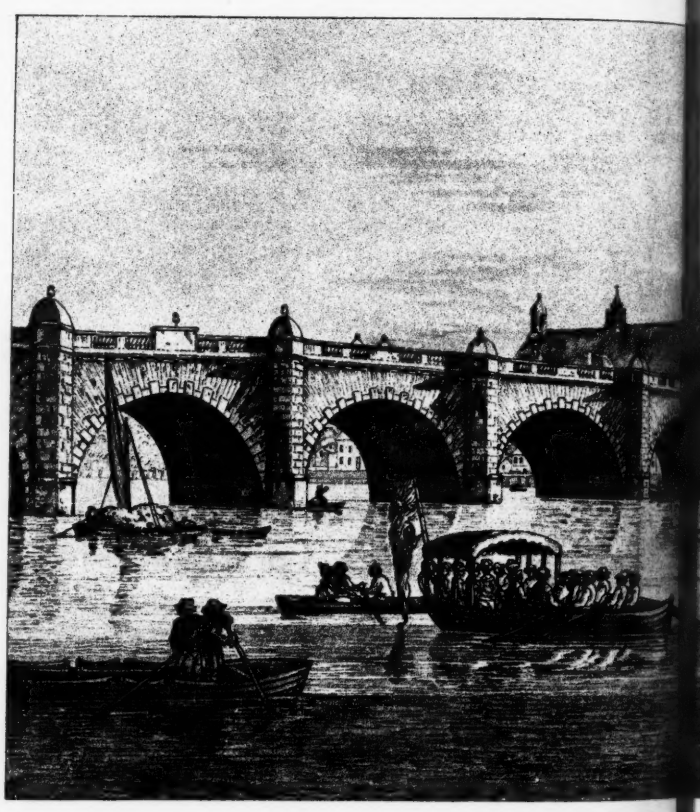
THE PORTAL OF THE NEW CENTURY: AN EXTEMPORE FANTASY.—By the Editor.

RURAL MILLBANK.



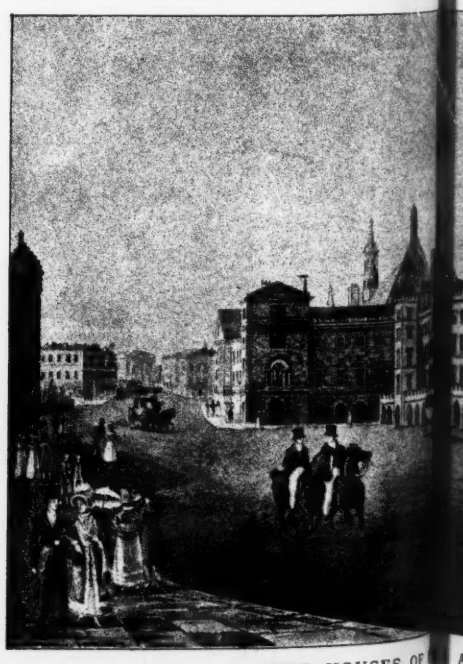
MILLBANK PR NTIAR

OLD BRIDEWELL GATE.



OLD WEST TER BR

THE PAINTED CHAMBER.



THE HOUSES OF AND CO

PORTIONS OF OLD WESTMINSTER AS THEY EXIST THE E

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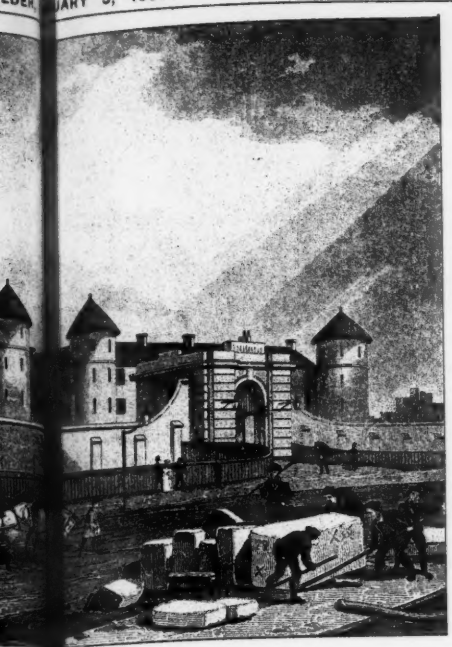
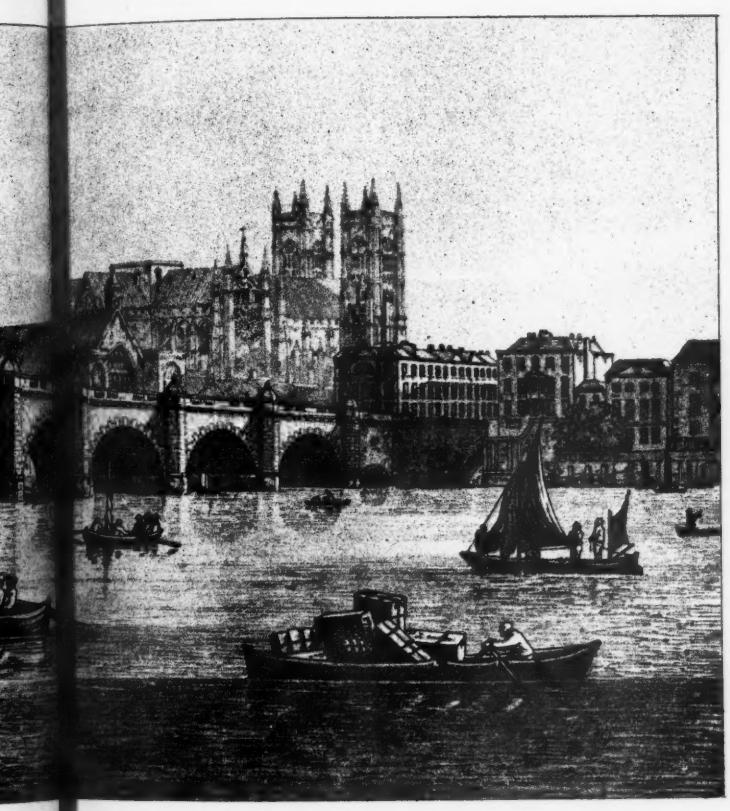
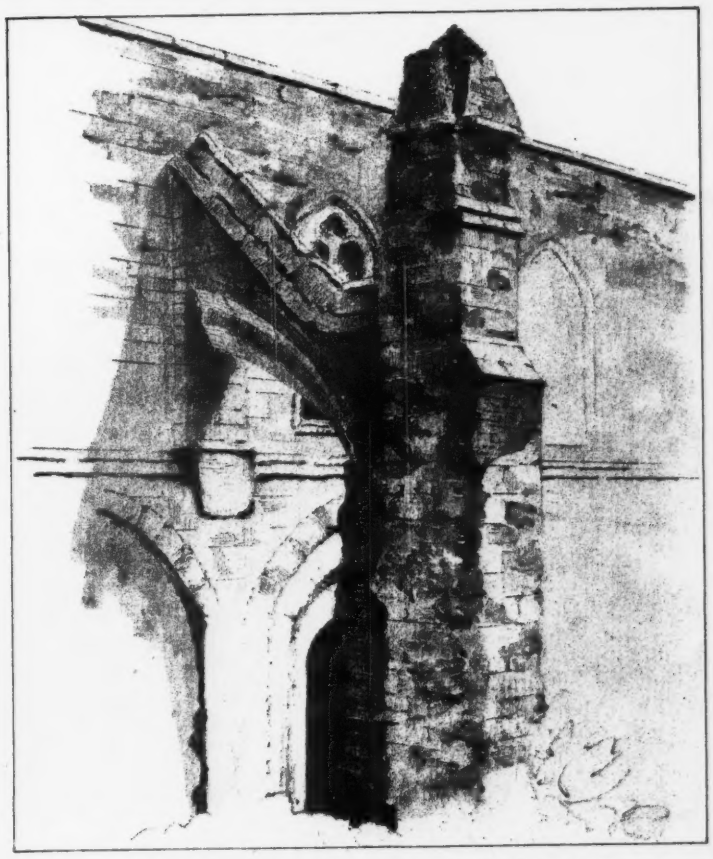


ANK PE NTIARY.

NEW PALACE YARD.



LD WEST TER BRIDGE.



BUTTRESS, WESTMINSTER HALL.

USES OF AND COMMONS.

SOUTH-WEST ANGLE, CLOISTER COURT, HOUSE OF COMMONS,
AFTER THE FIRE OF 1834.

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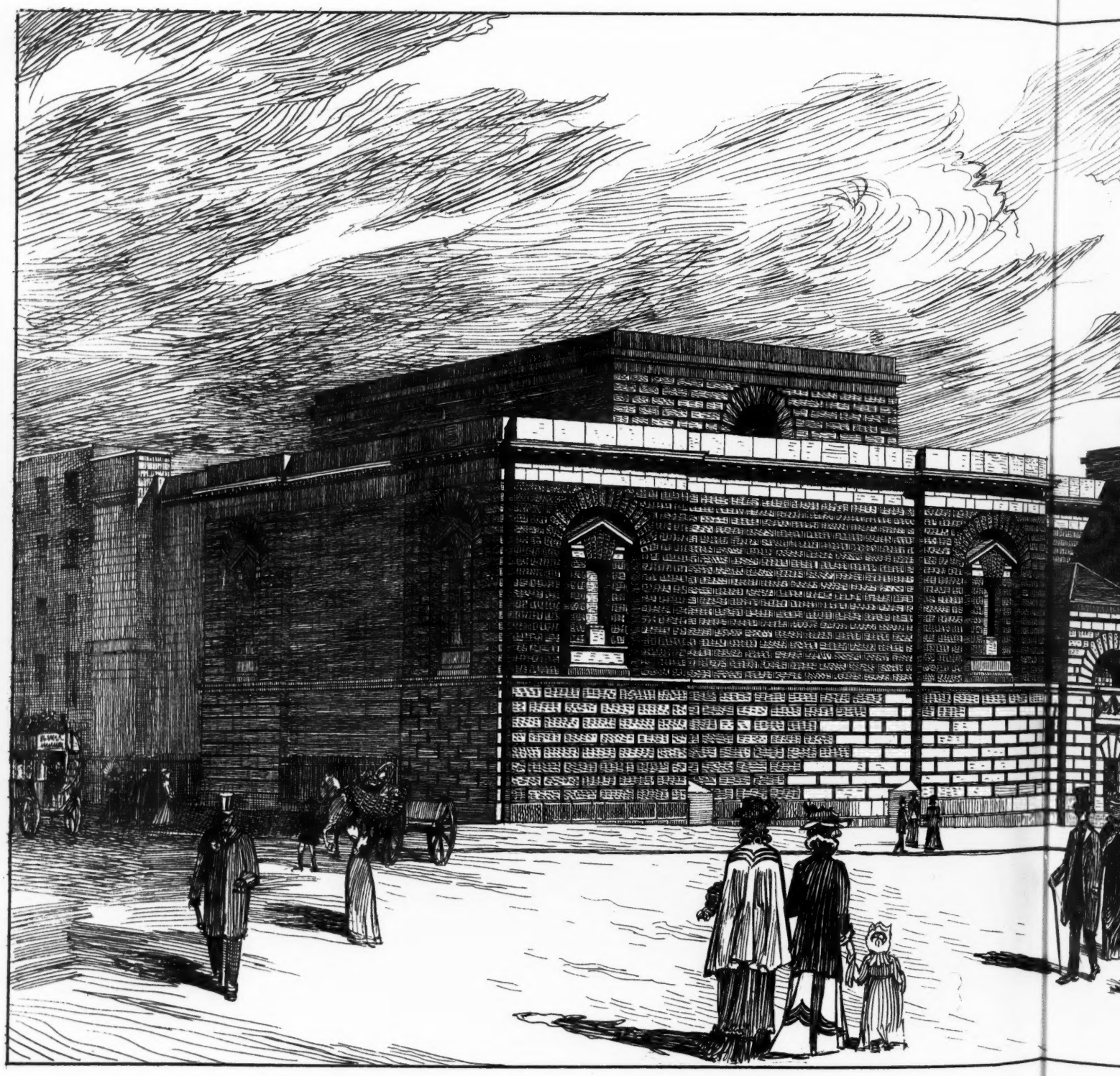

NEWGATE PRISON: SHORTLY TO BE DEMOLISHED. BUILT FROM THE
FROM A DRAWING BY MR. W. CURT

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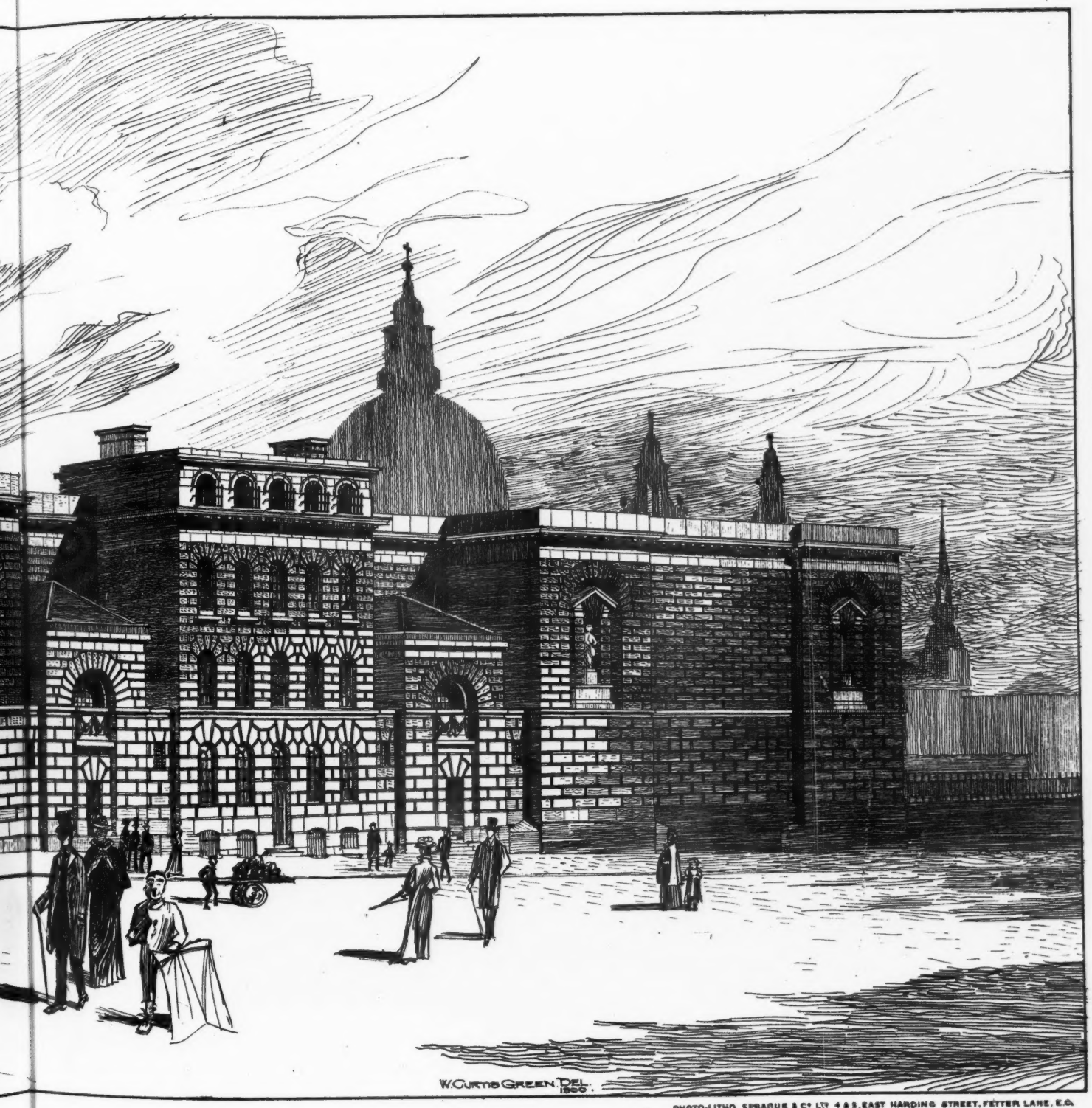

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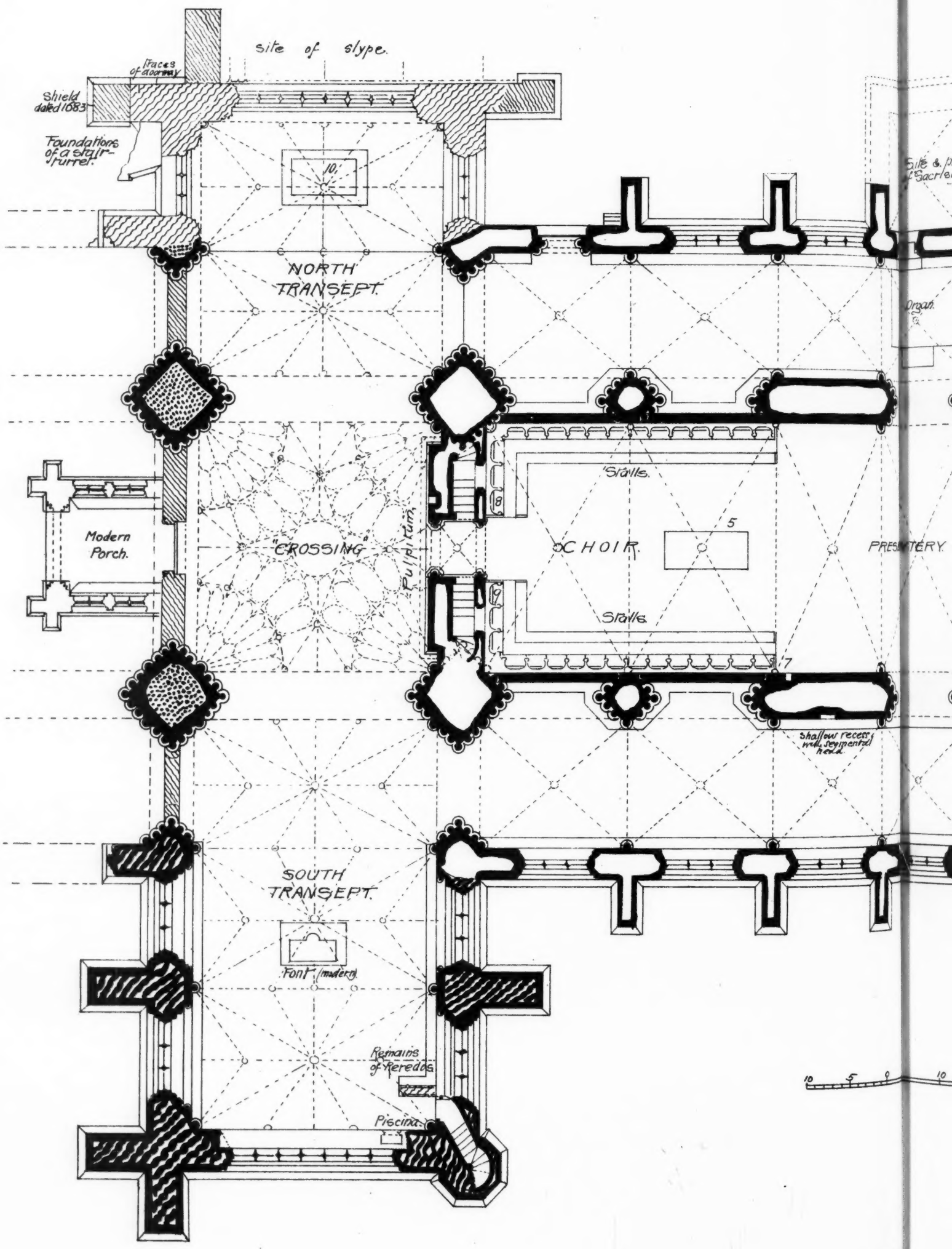
BUILT FROM THE DESIGNS OF GEORGE DANCE, R.A., ARCHITECT.
NG BY MR. W. CURTIS GREEN.


site of slype.
Traces of doorway
Shield dated 1683
Foundations of a stair-turret.
10
NORTH TRANSEPT.
Organ.
Stalls.
18
5
Modern Porch.
"CROSSING"
Pulpitum
CHOIR.
PRESBYTERY.
Stalls
9
7
Shallow recess with segmental head.
SOUTH TRANSEPT.
Font (modern)
Remains of Reredos
Piscina.
10 5 0 10

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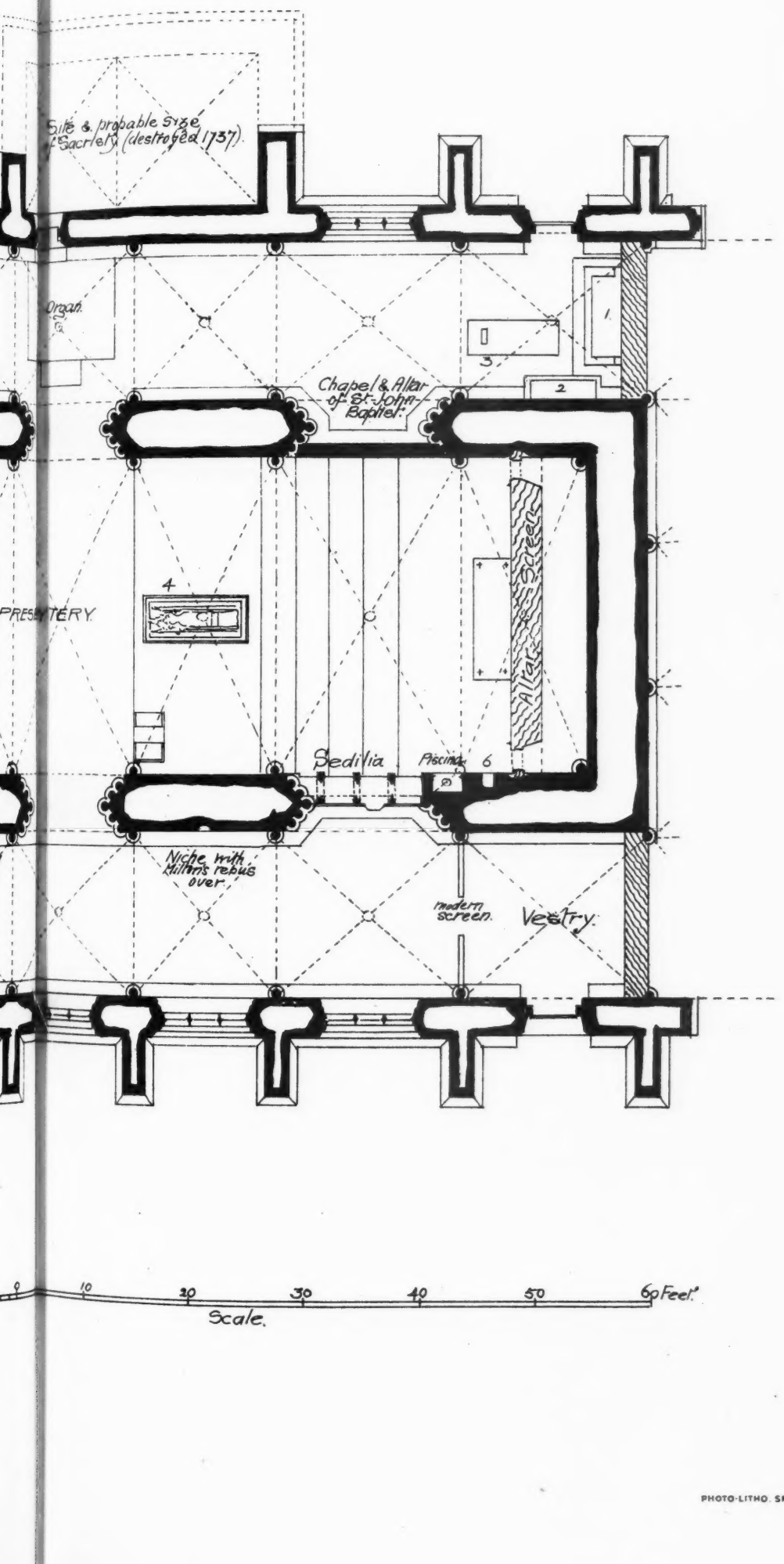
MILTON ABBEY

Ground-Plan of Church.



Monuments, etc.

1. Bancks monument.
2. Tregonwell & brass.
3. Brass of John Artur, monk.
4. Matrix of brass of Abbot Walter.
5. Gravestone.
6. Traces of Norman arch.
7. Traces of Norman arch.
8. } Panel paintings of King Athelstan
9. } & his Queen.
10. Damer monument.

Site of Lady Chapel.

1st Decorated
2nd "
3rd "
Perpendicular.
Post-Reformation.
Modern.

Roland W. Paul
mens et delt. 1900.

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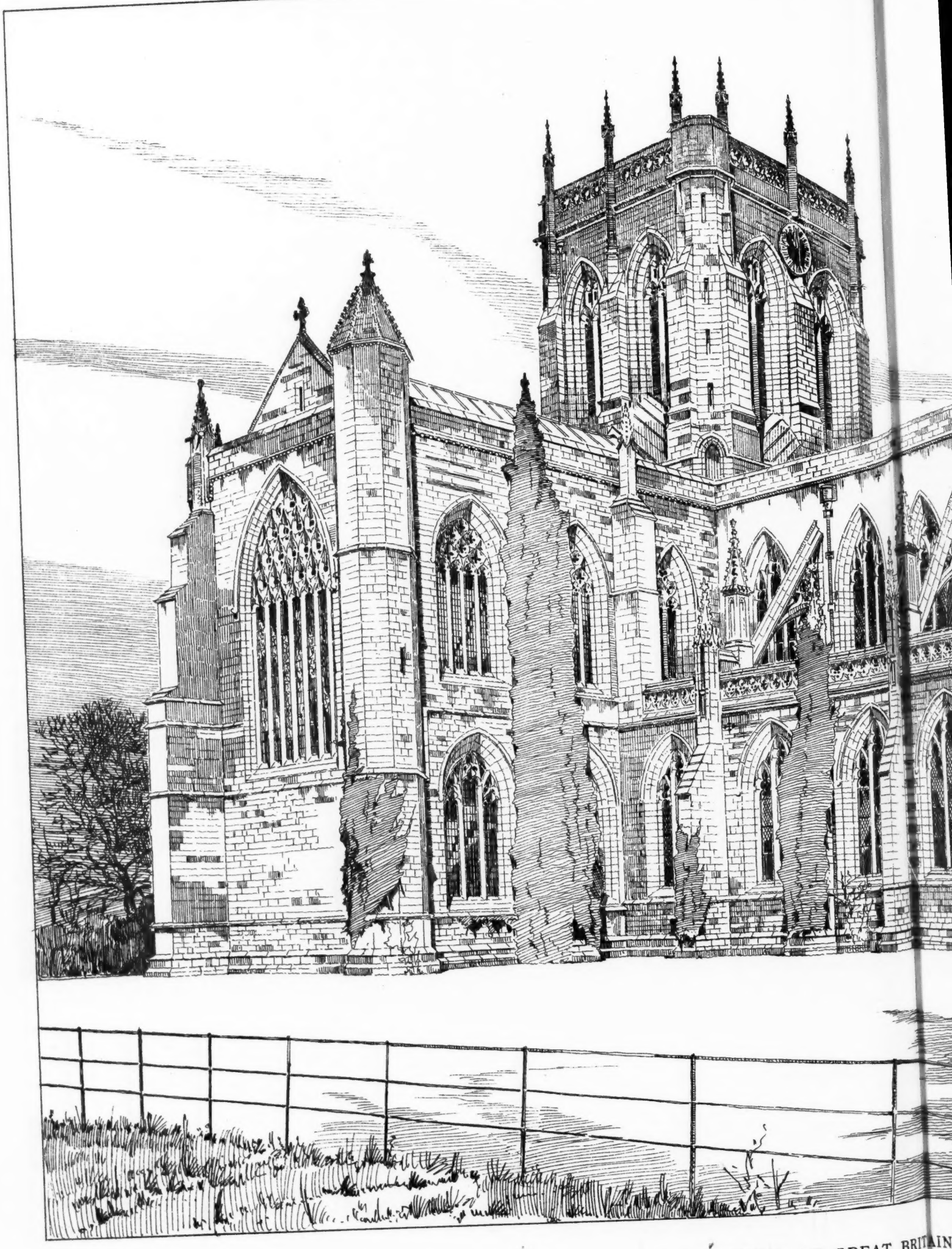

THE ABBEYS OF GREAT BRITAIN

DRAWN BY MR. ROLAND

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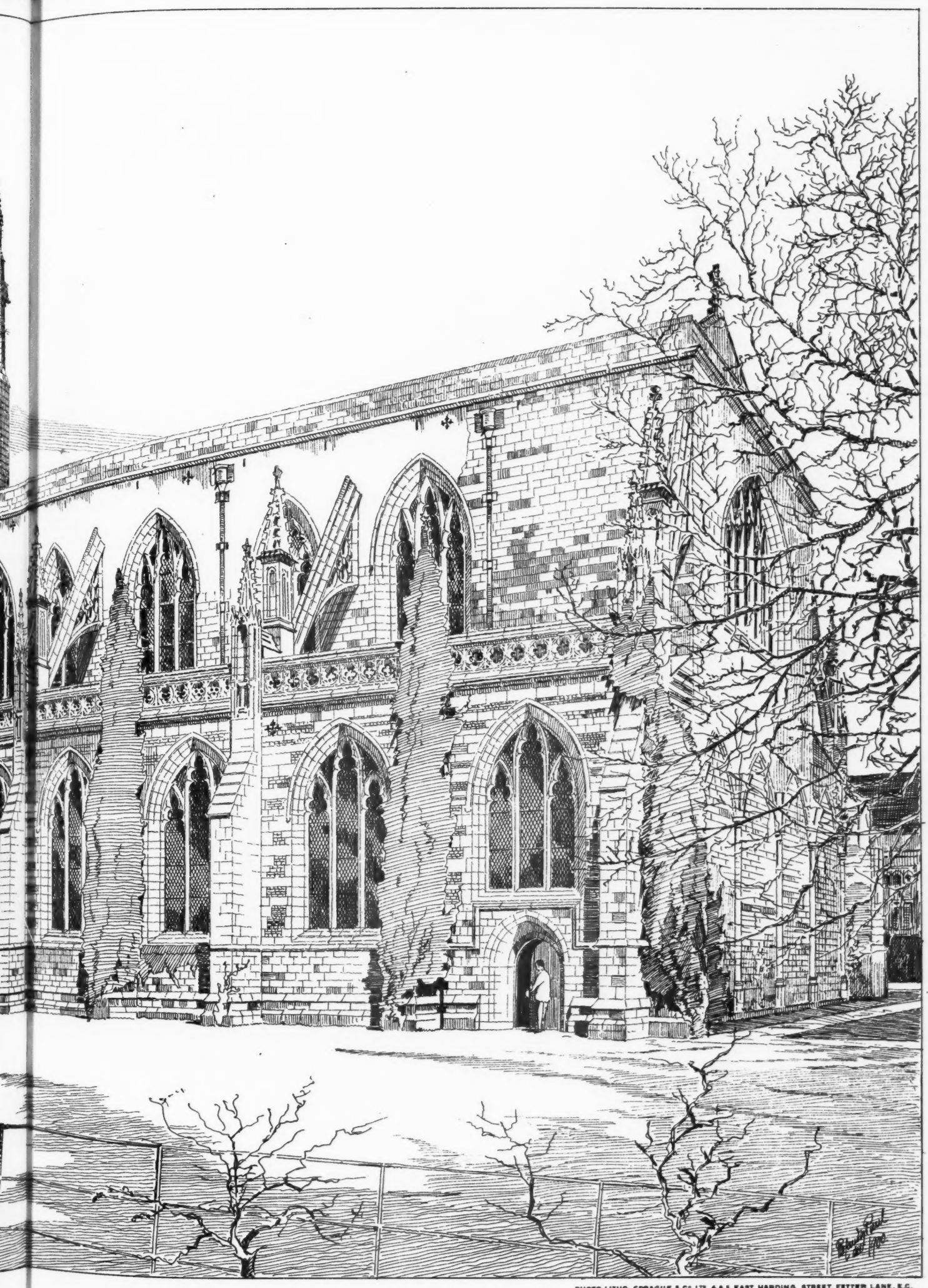

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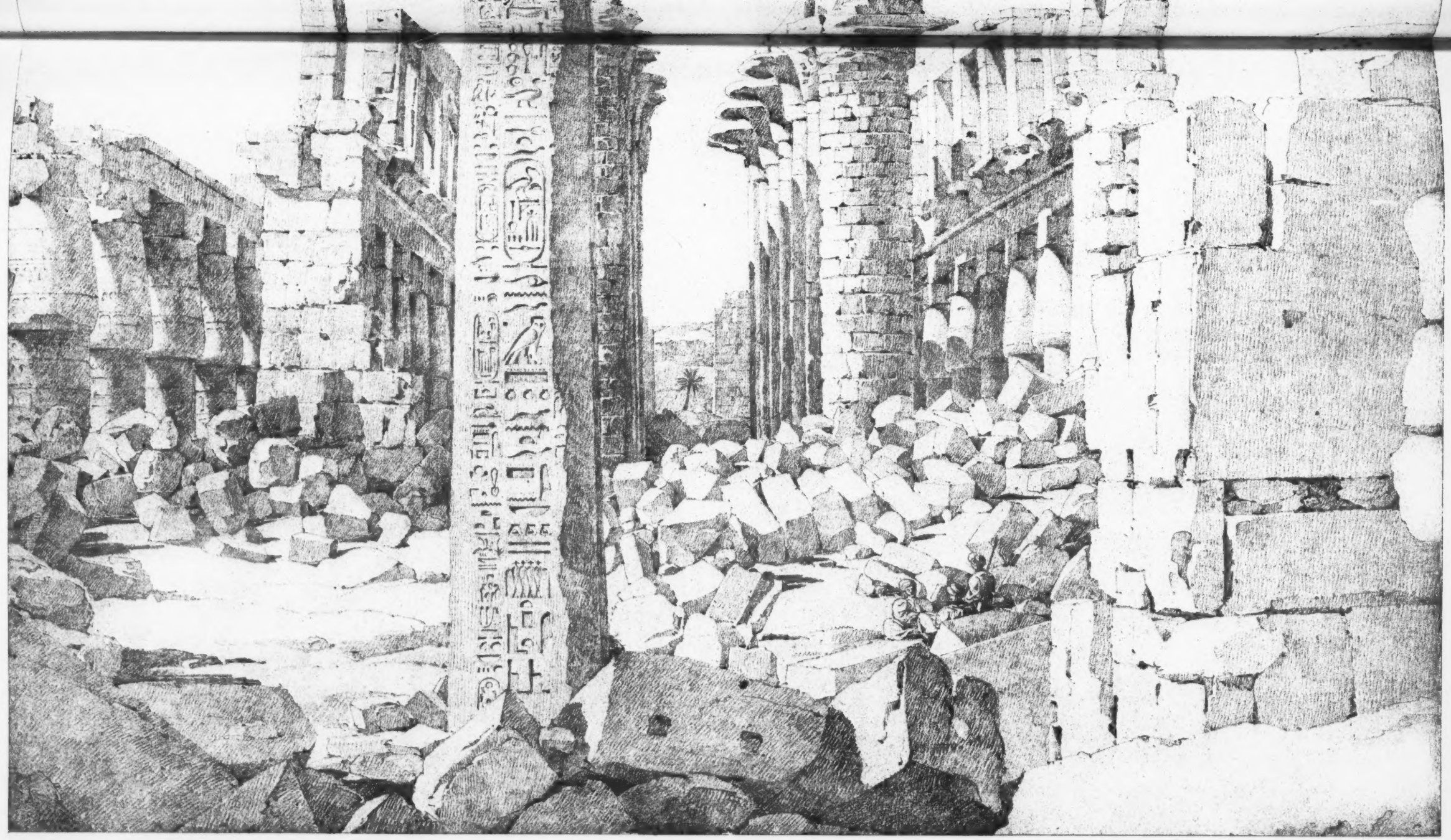
BRITAIN. No. 36. MILTON ABBAS.

MR. ROLAND W. PAUL.



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DRAWING OF THE RUINS OF KARNAC, MADE BY SIR CHARLES BARRY
PROBABLY ABOUT 1818, DURING HIS EARLY TOUR IN EGYPT AND GREECE.

JAN 7 1911

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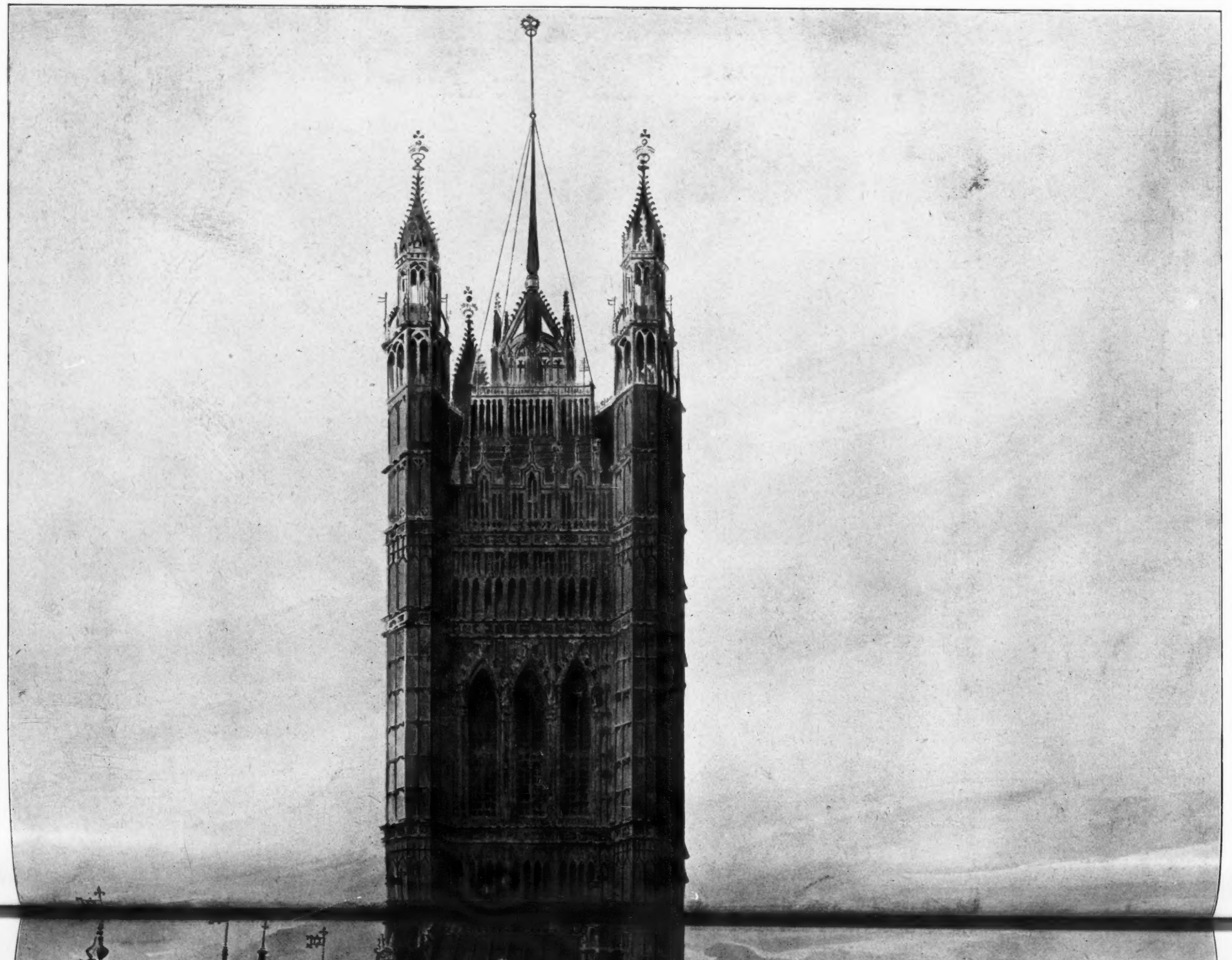
THE TOWER OF HALIFAX TOWN HALL: THE LAST WORK DESIGNED BY SIR CHARLES BARRY.



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THE VICTORIA TOWER, FROM THE ROOF OF THE HOUSES OF PARLIAMENT, LOOKING DOWN ON ABINGDON STREET.

FROM A DRAWING BY MR. W. MONK.